ORDER NO. AD9801005S0
A6

# Service Manual

Supplement

Compact Disc Changer

Compact Disc Changer

# SL-PD349
# SL-PD665
# SL-PD687
# SL-PD887

**Colour** (K) ... Black Type

**Areas**

| | |
|---|---|
| P | U.S.A. |
| PP | U.S.A. and Canada. |
| E | Europe. |
| EB | Great Britain. |
| EG | Germany and Italy. |
| GC | Asia, Latin America, Middle Near East and Africa. |
| GN | Oceania. |

## ■ This document is supplementary to the following Service Manuals:

| Model No. | Area Code | Order No. |
|---|---|---|
| SL-PD349 | (P) | AD9404110A1 |
| SL-PD665 | (PP) | AD9401023A1 |
| SL-PD687 | (E) (EB) (EG) (GC) (GN) | AD9502043C8 |
| SL-PD887 | (E) (EB) (EG) | AD9502066A2 |
| | (GC) (GN) | AD9502067A3 |

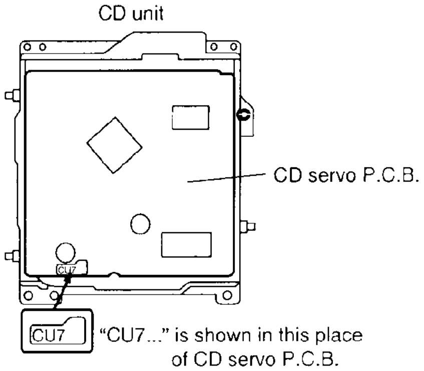
## ■ Purpose

Please be informed of that the “Traverse Deck (Ass'y)” and “CD Servo P.C.B.” of the CD unit have been changed on production.

## ■ Applicable Serial Number Suffix

| Model No. | SL-PD349 | SL-PD665 | SL-PD687 | SL-PD887 |
|---|---|---|---|---|
| Serial No. Suffix | from “ K ” onward | from “ I ” onward | from “ F ” onward | from “ F ” onward |

## ■ How to distinguish in CD unit



“CU7...” is shown in this place of CD servo P.C.B.

## ■ Interchangeability

The “NEW” Traverse Deck (Ass'y) (RAE0152Z) and the “FORMER” Traverse Deck (Ass'y) are interchangeable.

Even if the CD unit has the former servo P.C.B., only the traverse deck is changeable to the new one.

⚠ WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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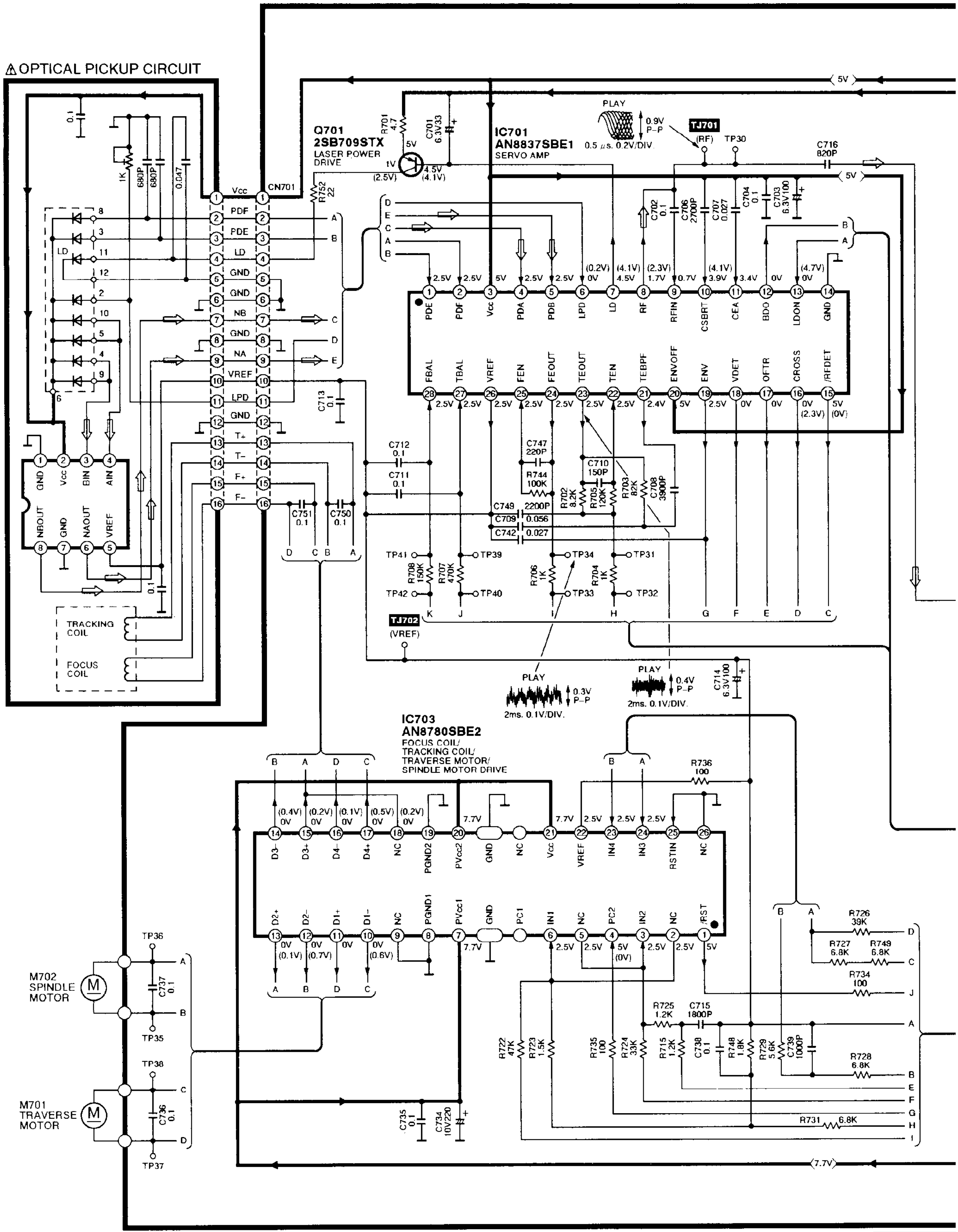
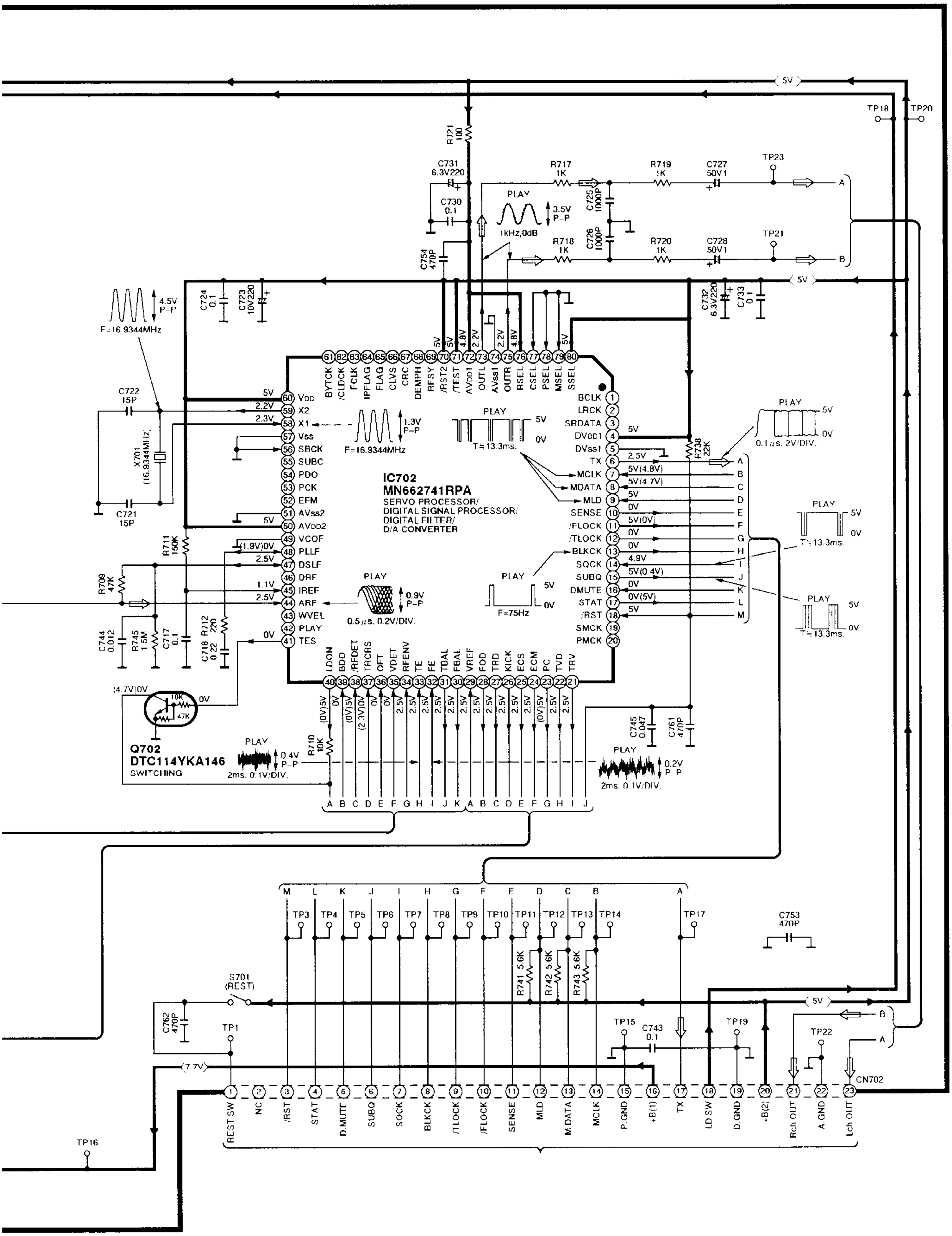
# ■ Shematic Diagram (New CD Unit)

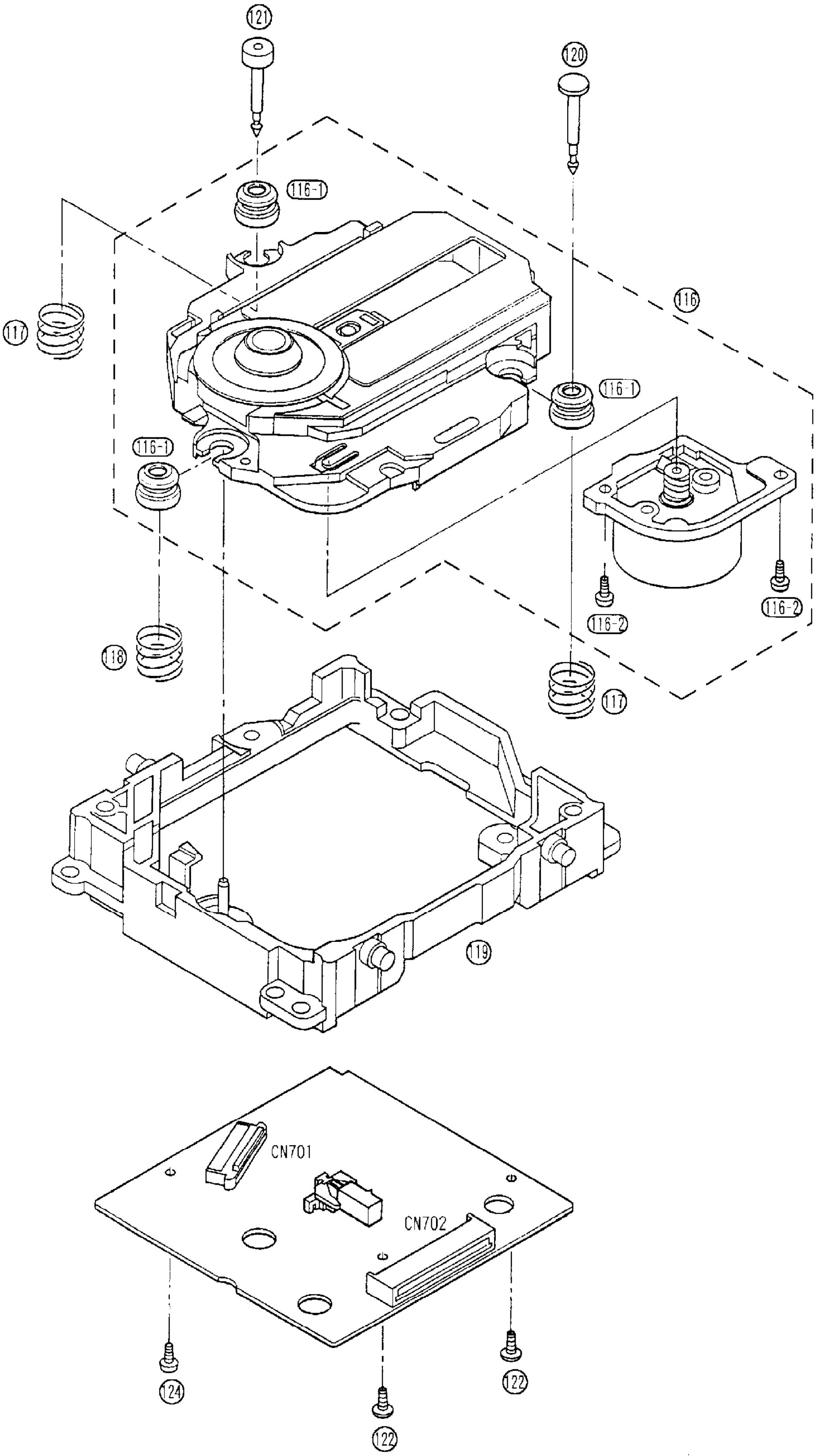
## A CD SERVO CIRCUIT


⚠OPTICAL PICKUP CIRCUIT
Q701
2SB709STX
LASER POWER DRIVE
IC701
AN8837SBE1
SERVO AMP
PLAY
0.9V P-P
0.5 μs. 0.2V/DIV
TJ701
(RF)
TP30
C716 820P
5V
CN701
Vcc
PDF
PDE
LD
GND
NB
NA
VREF
LPD
T+
T-
F+
F-
R701 4.7
C701 6.3V33
R752 22
1K
680P
680P
0.047
0.1
C702 0.1
C706 2700P
C707 0.027
C704 0.1
C703 6.3V100
PDE
PDF
Vcc
PDA
PDB
LPD
LD
RF
RFIN
CSBRT
CEA
BDO
LDON
GND
FBAL
TBAL
VREF
FEN
FEOUT
TEOUT
TEN
TEBPF
ENVOFF
ENV
VDET
OFTR
CROSS
/RFDET
GND
Vcc
BIN
AIN
NBOUT
GND
NAOUT
VREF
TRACKING COIL
FOCUS COIL
C713 0.1
C712 0.1
C711 0.1
C751 0.1
C750 0.1
C747 220P
R744 100K
C710 150P
R702 8.2K
R705 120K
R703 82K
C708 3900P
C749 2200P
C709 0.056
C742 0.027
TP41
TP39
TP34
TP31
R708 150K
R707 470K
R706 1K
R704 1K
TP42
TP40
TP33
TP32
TJ702
(VREF)
PLAY
0.3V P-P
2ms. 0.1V/DIV.
PLAY
0.4V P-P
2ms. 0.1V/DIV.
C714 6.3V100
IC703
AN8780SBE2
FOCUS COIL/
TRACKING COIL/
TRAVERSE MOTOR/
SPINDLE MOTOR DRIVE
R736 100
D3-
D3+
D4-
D4+
NC
PGND2
PVcc2
GND
NC
Vcc
VREF
IN4
IN3
RSTIN
NC
D2+
D2-
D1+
D1-
NC
PGND1
PVcc1
GND
PC1
IN1
NC
PC2
IN2
NC
/RST
7.7V
R726 39K
R727 6.8K
R749 6.8K
R734 100
R725 1.2K
C715 1800P
R722 47K
R723 1.5K
R735 100
R724 33K
R715 1.2K
C738 0.1
R748 1.8K
R729 5.6K
C739 1000P
R728 6.8K
R731 6.8K
TP36
TP35
TP38
TP37
M702 SPINDLE MOTOR
M701 TRAVERSE MOTOR
C737 0.1
C736 0.1
C735 0.1
C734 10V220
(7.7V)

**Note:** ● ⇨: CD signal line ● ➡: Positive voltage lines


IC702
MN662741RPA
SERVO PROCESSOR/
DIGITAL SIGNAL PROCESSOR/
DIGITAL FILTER/
D/A CONVERTER
VDD
X2
X1
Vss
SBCK
SUBC
PDO
PCK
EFM
AVss2
AVDD2
VCOF
PLLF
DSLF
DRF
IREF
ARF
WVEL
PLAY
TES
BYTCK
/CLDCK
FCLK
IPFLAG
FLAG
CLVS
CRC
DEMPH
RESY
/RST2
/TEST
AVDD1
OUTL
AVss1
OUTR
RSEL
CSEL
PSEL
MSEL
SSEL
BCLK
LRCK
SRDATA
DVDD1
DVss1
TX
MCLK
MDATA
MLD
SENSE
/FLOCK
/TLOCK
BLKCK
SQCK
SUBQ
DMUTE
STAT
/RST
SMCK
PMCK
LDON
BDO
/RFDET
TRCRS
OFT
VDET
RFENV
TE
FE
TBAL
FBAL
VREF
FOD
TRD
KICK
ECS
ECM
PC
TVD
TRV
R721 100
C731 6.3V220
C730 0.1
C754 470P
R717 1K
R718 1K
C725 1000P
C726 1000P
R719 1K
R720 1K
C727 50V1
C728 50V1
TP23
TP21
TP18
TP20
PLAY
3.5V P-P
1kHz,0dB
C724 0.1
C723 10V220
C732 6.3V220
C733 0.1
4.5V P-P
F≒16.9344MHz
C722 15P
C721 15P
X701 (16.9344MHz)
1.3V P-P
F=16.9344MHz
PLAY
T≒13.3ms.
5V
0V
PLAY
0.1μs. 2V/DIV.
R738 22K
R711 150K
R709 47K
C744 0.012
R745 1.5M
C717 0.1
C718 0.22
R712 220
PLAY
0.9V P-P
0.5μs. 0.2V/DIV.
PLAY
F=75Hz
PLAY
T≒13.3ms.
PLAY
T≒13.3ms.
(4.7V)0V
10K
47K
Q702
DTC114YKA146
SWITCHING
R710 10K
PLAY
0.4V P-P
2ms. 0.1V/DIV.
PLAY
0.2V P-P
2ms. 0.1V/DIV.
C745 0.047
C761 470P
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP11
TP12
TP13
TP14
TP17
C753 470P
R741 5.6K
R742 5.6K
R743 5.6K
S701 (REST)
C762 470P
TP1
TP15
C743 0.1
TP19
TP22
TP16
CN702
7.7V
REST SW
NC
/RST
STAT
D.MUTE
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
M.DATA
MCLK
P.GND
+B(1)
TX
LD SW
D.GND
+B(2)
Rch OUT
A.GND
Lch OUT

## ■ CD Unit Parts Location (New CD Unit)


121
120
116-1
116
117
116-1
116-1
116-2
116-2
118
117
119
CN701
CN702
124
122
122

## ■ Replacement Parts List (New CD Unit)

| Ref. No. | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|
| ⚠ 116 | RAE0152Z | TRAVERSE DECK ASS'Y | 1 | |
| 116-1 | SHGD113-1 | FLOATING RUBBER | 3 | |
| 116-2 | SNSD38 | SCREW | 2 | |
| 117 | RME0109 | FLOATING SPRING(1) | 2 | |
| 118 | RME0142 | FLOATING SPRING(2) | 1 | |
| 119 | RMR0698 K | TRAVERSE CHASSIS | 1 | |
| 120 | RMS0627 | TRAVERSE FIXED PIN(1) | 1 | |
| 121 | RMS0350-1 | TRAVERSE FIXED PIN(2) | 1 | |
| 122 | XTV2+6G | SCREW | 2 | |
| 124 | XTN2+6G | SCREW | 1 | |
| C701 | ECEA0JKA330I | 6.3V 33U | 1 | |
| C702 | ECUZNE104MBN | 25V 0.1U | 1 | |
| C703 | ECEA0JKA101I | 6.3V 100U | 1 | |
| C704 | ECUZNE104MBN | 25V 0.1U | 1 | |
| C706 | ECUV1H272KBN | 50V 2700P | 1 | |
| C707 | ECUV1E273KBN | 25V 0.027U | 1 | |
| C708 | ECUV1H392KBN | 50V 3900P | 1 | |
| C709 | ECUV1E563KBN | 25V 0.056U | 1 | |
| C710 | ECUV1H151KCN | 50V 150P | 1 | |
| C711, 12 | ECUWNE104ZFN | 25V 0.1U | 2 | |
| C713 | ECUZNE104MBN | 25V 0.1U | 1 | |
| C714 | ECEA0JKA101I | 6.3V 100U | 1 | |
| C715 | ECUV1H182KBN | 50V 1800P | 1 | |
| C716 | ECUV1H821KBN | 50V 820P | 1 | |
| C717 | ECUWNE104ZFN | 25V 0.1U | 1 | |
| C718 | ECUVNC224KBN | 16V 0.22U | 1 | |
| C721, 22 | ECUV1H150JCN | 50V 15P | 2 | |
| C723 | ECEA1AKA221I | 10V 220U | 1 | |
| C724 | ECUZNE104MBN | 25V 0.1U | 1 | |
| C725, 26 | ECUE1H102KBN | 50V 1000P | 2 | |
| C727, 28 | ECEA1HPK010I | 50V 1U | 2 | |
| C730 | ECUWNE104ZFN | 25V 0.1U | 1 | |
| C731, 32 | ECEA0JKA221I | 6.3V 220U | 2 | |
| C733 | ECUZNE104MBN | 25V 0.1U | 1 | |
| C734 | ECEA1AKA221I | 10V 220U | 1 | |
| C735-37 | ECUWNE104ZFN | 25V 0.1U | 3 | |
| C738 | ECUZNE104MBN | 25V 0.1U | 1 | |
| C739 | ECUV1H103KBN | 50V 0.01U | 1 | |
| C742 | ECUV1E273KBN | 25V 0.027U | 1 | |
| C743 | ECUWNE104ZFN | 25V 0.1U | 1 | |
| C744 | ECUV1E123KBN | 25V 0.012U | 1 | |
| C745 | ECUE1C473KBN | 16V 0.047U | 1 | |
| C747 | ECUV1H221KBN | 50V 220P | 1 | |
| C749 | ECUV1H222KBN | 50V 2200P | 1 | |
| C750, 51 | ECUZNE104MBN | 25V 0.1U | 2 | |
| C753 | ECUV1H471KBM | 50V 470P | 1 | |
| C754 | ECUE1H471KBN | 50V 470P | 1 | |
| C761, 62 | ECUE1H471KBN | 50V 470P | 2 | |
| CN701 | RJU035T016-1 | SOCKET(16P) | 1 | |
| CN702 | RJS1A6723-1Q | CONNECTOR(23P) | 1 | |
| IC701 | AN8837SBE1 | IC | 1 | |
| IC702 | MN662741RPA | IC | 1 | |
| IC703 | AN8780SBE2 | IC | 1 | |
| Q701 | 2SB709STX | TRANSISTOR | 1 | |
| Q702 | DTC114YKA146 | TRANSISTOR | 1 | |
| R701 | ERJ6GEYJ4R7V | 1/10W 4.7 | 1 | |
| R702 | ERJ6GEYJ822V | 1/10W 8.2K | 1 | |
| R703 | ERJ6GEYJ823V | 1/10W 82K | 1 | |
| R704 | ERJ6GEYJ102A | 1/10W 1K | 1 | |
| R705 | ERJ6GEYJ124V | 1/10W 120K | 1 | |
| R706 | ERJ6GEYJ102A | 1/10W 1K | 1 | |
| R707 | ERJ6GEYJ474V | 1/10W 470K | 1 | |
| R708 | ERJ6GEYJ154V | 1/10W 150K | 1 | |
| R709 | ERJ6GEYJ473V | 1/10W 47K | 1 | |
| R710 | ERJ6GEYJ103V | 1/10W 10K | 1 | |
| R711 | ERJ6GEYJ154V | 1/10W 150K | 1 | |
| R712 | ERJ6GEYJ221V | 1/10W 220 | 1 | |
| R715 | ERJ6GEYJ122V | 1/10W 1.2K | 1 | |
| R717-20 | ERJ6GEYJ102A | 1/10W 1K | 4 | |
| R721 | ERJ6GEYJ101V | 1/10W 100 | 1 | |
| R722 | ERJ6GEYJ473V | 1/10W 47K | 1 | |
| R723 | ERJ6GEYJ152V | 1/10W 1.5K | 1 | |
| R724 | ERJ6GEYJ333V | 1/10W 33K | 1 | |
| R725 | ERJ6GEYJ122V | 1/10W 1.2K | 1 | |
| R726 | ERJ6GEYJ393V | 1/10W 39K | 1 | |
| R727, 28 | ERJ6GEYJ682V | 1/10W 6.8K | 2 | |
| R729 | ERJ6GEYJ562V | 1/10W 5.6K | 1 | |
| R731 | ERJ6GEYJ682V | 1/10W 6.8K | 1 | |
| R734-36 | ERJ6GEYJ101V | 1/10W 100 | 3 | |
| R738 | ERJ6GEYJ223V | 1/10W 22K | 1 | |
| R741-43 | ERJ6GEYJ562V | 1/10W 5.6K | 3 | |
| R744 | ERJ6GEYJ104V | 1/10W 100K | 1 | |
| R745 | ERJ6GEYJ155V | 1/10W 1.5M | 1 | |
| R748 | ERJ6GEYJ152V | 1/10W 1.5K | 1 | |
| R749 | ERJ6GEYJ682V | 1/10W 6.8K | 1 | |
| R752 | ERJ8GEYJ220V | 1/8W 22 | 1 | |
| RJ701 | ERJ6GEY0R00A | CHIP JUMPER | 1 | |
| RJ702-10 | ERJ8GEY0R00A | CHIP JUMPER | 9 | |
| RJ721-28 | ERJ6GEY0R00A | CHIP JUMPER | 8 | |
| RJ750 | ERJ6GEY0R00A | CHIP JUMPER | 1 | |
| S701 | RSH1A043-U | SW | 1 | |
| TJ701 | EYF8CU | CHIP CLIP | 1 | |
| X701 | RSXZ16M9M01T | OSCILLATOR | 1 | |

ORDER NO. AD9502043C8

# Service Manual

COMPACT disc DIGITAL AUDIO

DIGITAL

MASH※
multi-stage noise shaping

## Compact Disc Changer
## SL-PD687

Technics
5 DISC
MASH

**Colour**

(K) ... Black Type

**Area**

| Suffix for Model No. | Area | Colour |
|---|---|---|
| (E) | Europe. | (K) |
| (EB) | Great Britain. | |
| (EG) | Germany and Italy. | |
| (GC) | Asia, Latin America, Middle Near east and Africa. | |
| (GN) | Oceania. | |

※
- Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
- MASH is a trademark of NTT.

**RAE0113Z MECHANISM SERIES**

## ■ SPECIFICATIONS

### ■ AUDIO

| | |
|---|---|
| **No. of channels** | 2 (left and right, stereo) |
| **Frequency response** | 2−20,000 Hz, ±1 dB |
| **Output voltage** | 2 V (at 0 dB) |
| **Dynamic range** | 92 dB |
| **S/N** | 100 dB |
| **Total harmonic distortion** | 0.007 % (1 kHz, 0 dB) |
| **Wow and flutter** | Below measurable limit |
| **DA converter** | MASH (1 bit) |
| **Output impedance** | Approx. 1 kΩ |
| **Load impedance** | More than 10 kΩ |

### ■ PICKUP

| | |
|---|---|
| **Wavelength** | 780 nm |

### ■ GENERAL

| | |
|---|---|
| **Power consumption** | |
| **For (E, EB, EG, GN) areas.:** | 12 W |
| **For (GC) area.:** | 14 W |
| **Power supply** | |
| **For (E, EB, EG, GN) areas.:** | AC 50/60 Hz, 230−240 V |
| **For (GC) area.:** | AC 50/60 Hz, 110 V/127 V/220 V/230−240 V |
| **Dimensions (W × H × D)** | 430 × 125 × 370 mm<br>(16-15/16″ × 4-15/16″ × 14-9/16″) |
| **Weight** | 4.6 kg (10.1 lb.) |

**Note:**

Disign and specifications are subject to change without notice.
Weight and dimensions are approximate.

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**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

# ■ PRECAUTION OF LASER DIODE

**CAUTION:** This product utilizes a laser diode with the unit turned "on", invlsible laser radiation is emitted from the pickup lens.
Wave length: 780nm
Maximum output radiation power from pickup: 100µW/VDE

Laser radiation from the pickup lens is safety level, but be sure the followings:

1. Do not disassemble the optical pickup unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pickup lens for a long time.

**ACHTUNG:** Dieses Produkt enthält eine Laserdiode. Im eingeschalteten Zustand wird unsichtbare Laserstrahlung von der Lasereinheit abgestrahlt.

Wellenlänge: 780nm
Maximale Strahlungsleistung der Lasereinheit: 100µW/VDE

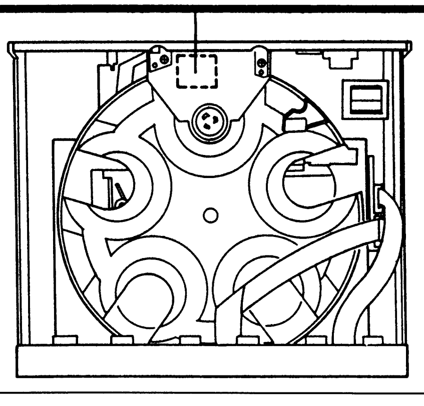
Die Strahlung an der Lasereinheit ist ungefährlich, wenn folgende Punkte beachtet werden:

1. Die Lasereinheit nicht zerlegen, da die Strahlung an der freigelegten Laserdiode gefährlich ist.
2. Den werkseitig justierten Einstellregler der Lasereinhit nicht verstellen.
3. Nicht mit optischen Instrumenten in die Fokussierlines blicken.
4. Nicht über längere Zeit in die Fokussierlinse blicken.

**ADVARSEL: I dette a apparat anvendes laser.**

- **Use of caution label**

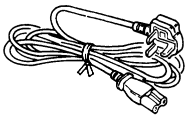
| | |
|---|---|
| DANGER | INVISIBLE LASER RADIATION WHEN OPEN.<br>AVOID DIRECT EXPOSURE TO BEAM. |
| ADVARSEL | USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE<br>ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING. |
| VARO! | AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA<br>NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN. |
| VARNING | OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH<br>SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN. |
| ADVARSEL | USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS<br>BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN. |
| VORSICHT | UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET.<br>NICHT DEM STRAHL AUSSETZEN. RQLS0104 |

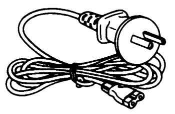


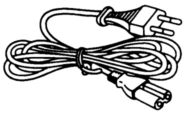
CAUTION!
THIS PRODUCT UTILIZES A LASER.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

# ■ ACCESSORIES

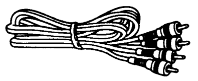
AC power supply cord .................................. 1 pc.
[VJA0733 (EB)]  [RJA0036-K (GN)]  [RJA0019-2K (E, EG, GC)]



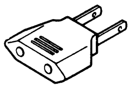




Stereo connection cable ............ 1 pc.
[SJP2249-3]



Power plug adaptor .......... 1 pc.
[SJP5213-2 (GC)]

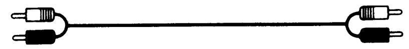


# ■ CONNECTIONS

Before connecting the changer to your audio system, make sure that the power of the changer and all other system components is turned off.

- Although the figure below shows the AC power supply cord being connected to a household AC outlet, if the amplifier (or receiver) is equipped with an AC outlet, connect the cord to that outlet.
- The configuration of the AC outlet differs according to area.

**Stereo connection cable**

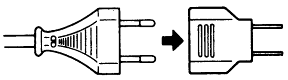

White (L)
Red (R)

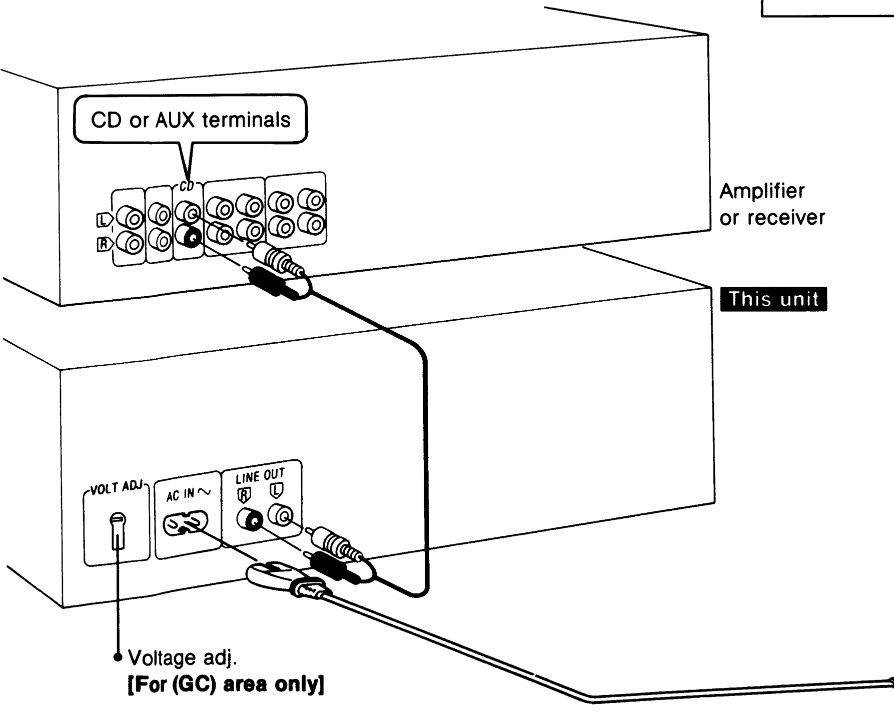
**[For (EB) area only]**
**BE SURE TO READ THE CAUTION FOR AC POWER SUPPLY CORD ON PAGE 4 BEFORE THE FOLLOWING CONNECTIONS.**

**[For (GC) area only]**
Set the voltage selector to the voltage setting for the area in which the unit will be used.
[Use a minus (−) screwdriver]

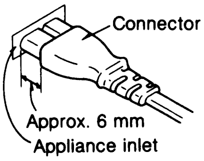
*Note*
If the power supply in your area is 117 V or 120 V, set to the "127 V" position.
Note that this unit will be seriously damaged if this setting is not made correctly.

If the power plug will not fit your socket, use the power plug adaptor (included).



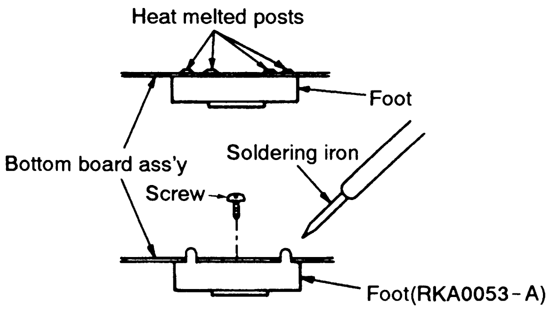

CD or AUX terminals
CD
L
R
Amplifier or receiver
This unit
VOLT ADJ
AC IN ~
LINE OUT
R
L
Voltage adj.
[For (GC) area only]
Household AC outlet

**[For (E, EB, EG, GC) areas]**
**Insertion of Connector**
Even when the connector is perfectly inserted, depending on the type of inlet used, the front part of the connector may jut out as shown in the drawing.
However there is no problem using the unit.


Connector
Approx. 6 mm
Appliance inlet

# ■ REPLACEMENT OF THE FOOT

1. Remove the 4 heat melted posts on the Bottom board ass'y with a pair of nippers or similar tool.
2. To replace the foot (RKA0053-A) on the Bottom board ass'y melt the 4 posts with a soldering iron or install it with a screw (XTB3+6J).


Heat melted posts
Foot
Bottom board ass'y
Soldering iron
Screw
Foot(RKA0053-A)

# ■CAUTION FOR AC MAINS LEAD

## For (EB) area.

**("EB" area code model only)**

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

**CAUTION!**
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

### IMPORTANT

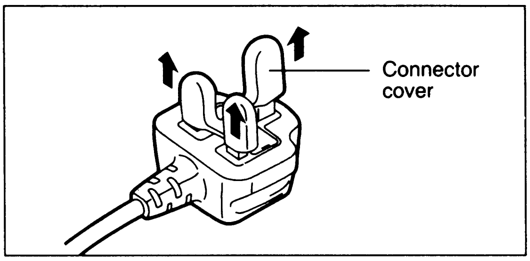
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral, Brown: Live.
As these colours may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Black or Blue.
The wire which is coloured Brown must be connected to the terminal which is marked with the letter L or coloured Brown or Red.

**WARNING: DO NOT CONNECT EITHER WIRE TO THE EARTH TERMINAL WHICH IS MARKED WITH THE LETTER E, BY THE EARTH SYMBOL ⏚ OR COLOURED GREEN OR GREEN/YELLOW.**

**THIS PLUG IS NOT WATERPROOF—KEEP DRY.**

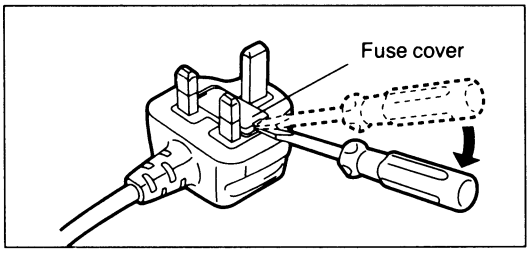
### Before use

Remove the connector cover as follows.

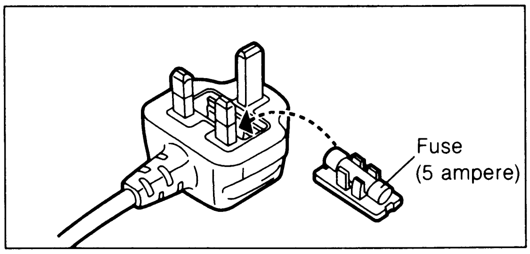


### How to replace the fuse

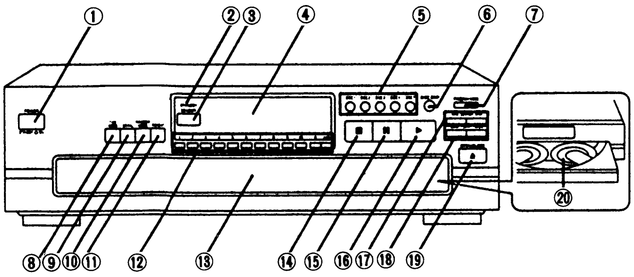
1. Remove the fuse cover with a screwdriver.



2. Replace the fuse and attach the fuse cover.



## ■ FRONT PANEL CONTROLS



*No.* *Name*

① **Power "STANDBY ⏻ /ON" switch (POWER, STANDBY ⏻ /ON)**
Press to switch the unit from on to standby mode or vice versa. In standby mode, the unit is still consuming a small amount of power.

② **"STANDBY" indicator (STANDBY)**
When the unit is connected to the AC mains supply, this indicator lights up in standby mode and goes out when the unit is turned on.

③ **Remote control signal sensor (SENSOR)**
The word "SENSOR" does not appear on the panel, but if you have an amplifier (or receiver) with remote control transmitter which is manufactured by Technics, it is possible to operate the main unit using this remote control transmitter. (Some remote control transmitters cannot be used.)

④ **Display**

⑤ **Disc buttons (DISC 1 – 5)**

⑥ **Disc skip button (DISC SKIP)**

⑦ **Program mode button (PROGRAM MODE)**

⑧ **Time mode button (TIME MODE)**

⑨ **Spiral button (SPIRAL)**

⑩ **Random mode button (RANDOM MODE)**

⑪ **Repeat button (REPEAT)**

⑫ **Numeric buttons (1 – 10, 0, >10)**

⑬ **Loading drawer**

⑭ **Stop button (■)**

⑮ **Pause button (❚❚)**

⑯ **Play button (▶)**

⑰ **Search buttons (◀◀ SEARCH ▶▶)**

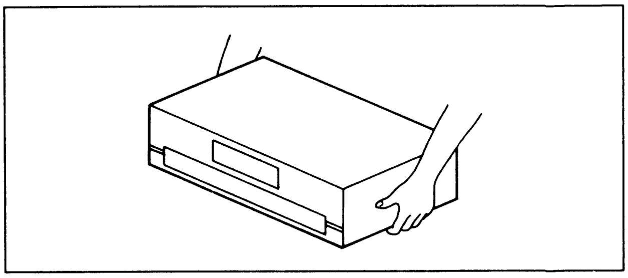
*No.* *Name*

⑱ **Skip buttons (|◀◀ SKIP ▶▶|)**

⑲ **Loading drawer open/close button (▲ OPEN/CLOSE)**

⑳ **Disc trays (1 – 5)**

## ■ CAUTIONS CONCERNING THE MOVING OF THIS UNIT



**CAUTION**

Before moving the changer to another location, be sure to carry out the "Preparations for moving the unit" described below.

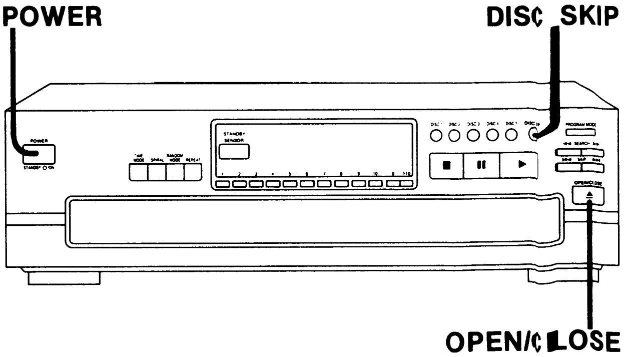
Failure to do so will expose the compact discs and the changer to the risk of severe damage.

**Preparations for moving the unit**

All of the discs must be removed so that the trays are completely empty.
Use the following procedure.

① **Press POWER to switch off the unit.**
② **Press POWER to switch on the unit.**
(If there is a disc in the play section, it will be returned to the disc tray at this time.)
③ **Press OPEN/CLOSE to open the loading drawer.**
④ **Press DISC SKIP to rotate the disc trays and remove the discs from all disc trays.**
⑤ **Press OPEN/CLOSE to close the loading drawer.**
⑥ **Press POWER to switch off the unit.**

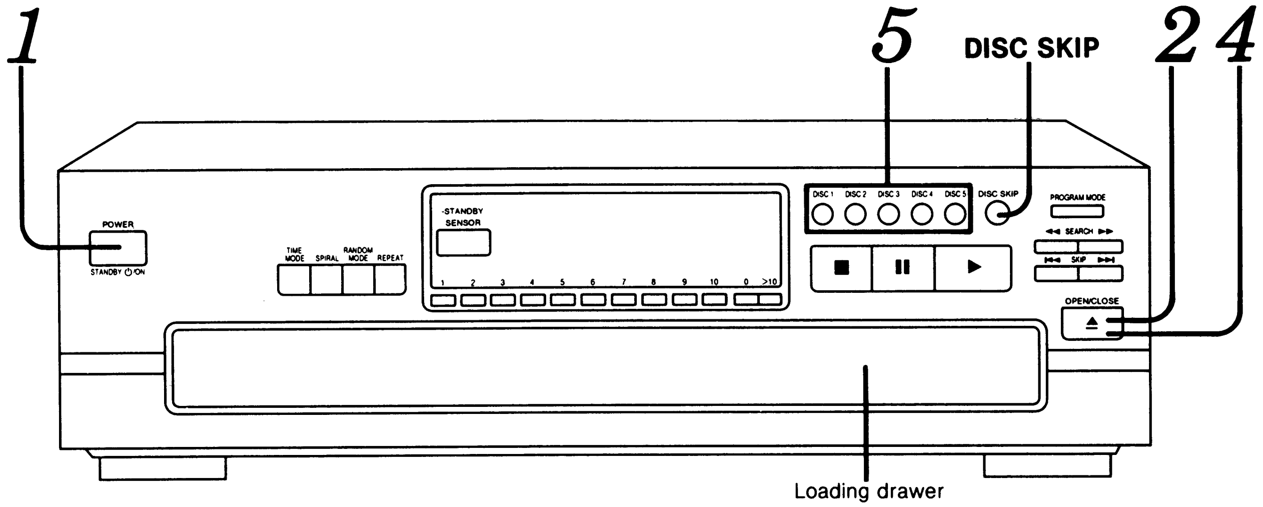
If you have pressed a wrong button by mistake, return to step ①.



# ■ BASIC OPERATIONS

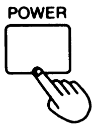
## *Sequential play*

All of the discs will be played, beginning from track 1 on the selected disc.


1
5
DISC SKIP
2 4
POWER
STANDBY ⏻/ON
TIME MODE
SPIRAL
RANDOM MODE
REPEAT
·STANDBY SENSOR
1 2 3 4 5 6 7 8 9 10 0 >10
DISC 1 DISC 2 DISC 3 DISC 4 DISC 5
DISC SKIP
PROGRAM MODE
◄◄ SEARCH ►►
|◄◄ SKIP ►►|
OPEN/CLOSE
Loading drawer

The explanation below is an example of operation in the case where all five disc trays in the changer are holding CDs.

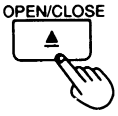
**1**



### Press POWER.

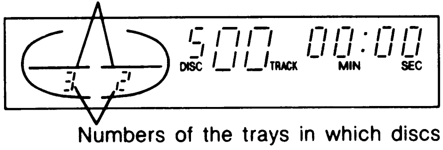
The unit will switch on.

**2**



### Press OPEN/CLOSE to open the loading drawer.

Indicates that the loading drawer is open.

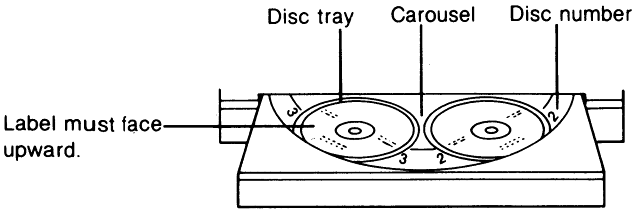

5 0 0 00:00
DISC TRACK MIN SEC
3 2

Numbers of the trays in which discs are loaded.

**3**

### Load the disc(s) on the disc tray(s).

The discs can be loaded two at a·time by pressing DISC SKIP to rotate the carousel.


Disc tray
Carousel
Disc number
Label must face upward.
3
2

**Note**

Do not load 3″ (8 cm) and 5″ (12 cm) discs on the same disc tray.

**CAUTION**

Do not touch the loading drawer and carousel while they are in motion, and do not attempt to rotate the carousel by hand; doing so could result in incorrect operation of the unit and/or damage to the discs.

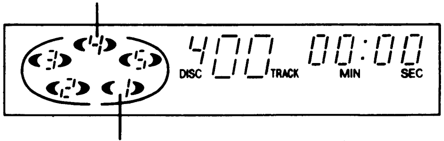
**4**

### Press OPEN/CLOSE again to close the loading drawer.

**Note**

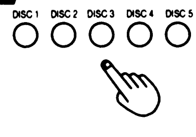
Do not attempt to close the drawer by hand.

Current play position (The numeral illuminates with a red color.)


4 0 0 00:00
DISC TRACK MIN SEC
3 4 5 2 1

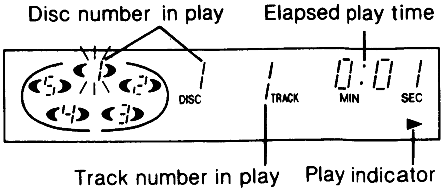
Illuminates when a disc is in the disc tray. If there is no disc in the disc tray, the indication disappears when the disc tray comes to the play position.

**5**

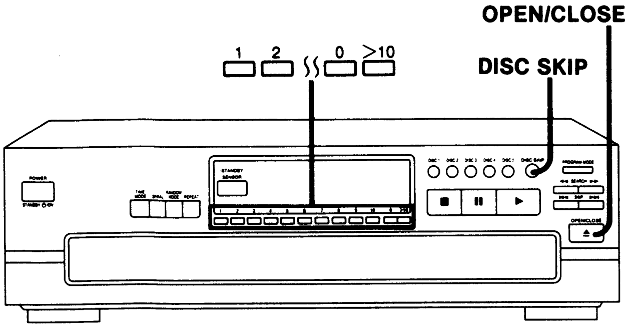

DISC 1 DISC 2 DISC 3 DISC 4 DISC 5

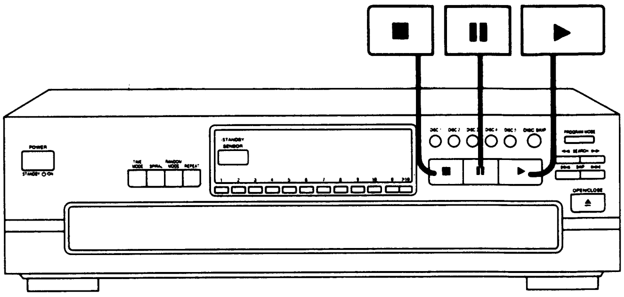
### Press the desired disc button (1−5).

Play will begin from the selected disc. If a disc is not on the selected disc tray, the changer plays the disc at the next number.

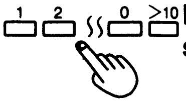

Disc number in play
Elapsed play time
1 1 0:01
DISC TRACK MIN SEC
5 1 2 4 3
Track number in play
Play indicator

The changer plays all the tracks on all the discs in order and stops automatically when the last track on the last disc finishes playing. The first disc will then be at the playing position.



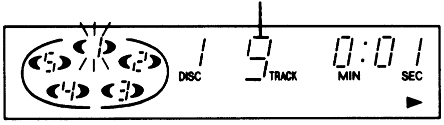


## To directly access a desired track



**Press the numeric button(s) to select the track.**

Track number



**To select a track between 1 and 10:**
Press the corresponding number on the numeric button.

**To select a two-digit track number over 10:**
First press >10, and then press the numbers for the two digits.

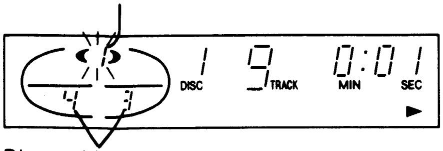
**For example; number 20:**
Press >10, then 2, and then 0.

## To exchange discs during play

While playing a disc, it is possible to change the other discs without interrupting play.

① **Press OPEN/CLOSE to open the loading drawer.**

Current disc



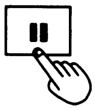
Discs which can be changed.

② **Press DISC SKIP to rotate the disc trays and exchange the discs.**
The carousel will move by one disc tray. Pressing again moves the carousel in the opposite direction by two disc trays.

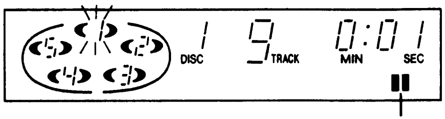
③ **Press OPEN/CLOSE to close the loading drawer.**

**Note**
If you play a disc with the loading drawer open, discs other than the current disc cannot be played.

## To temporarily stop play

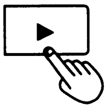


**Press II.**



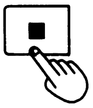
Illuminates

## To resume play



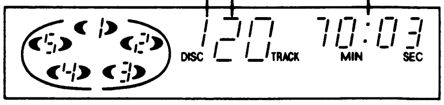
**Press ▶.**

## To stop play



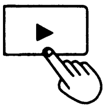
**Press ■.**
The display will show the total number of tracks and the total playing time of the current disc.

Total number of tracks
Current disc
Total playing time



The total playing time displayed includes the silent sections between tracks. For this reason, it may be a few seconds longer than the playing time indicated on the disc.

## To resume play



**Press ▶.**

**CAUTION**
Do not move this changer with a compact disc inside the unit. If a disc comes off the disc tray, it might be scratched or the changer might become incapable of playing.
(Refer to "Cautions concerning the moving of this unit" on page 5.)

# ■ SELF-DIAGNOSTIC DISPLAY FUNCTION

## Self-diagnostic display

This unit is equipped with a self-diagnostic display function which, if a problem occurs, will display an error code corresponding to the problem.
Use this function when performing maintenance on the unit.

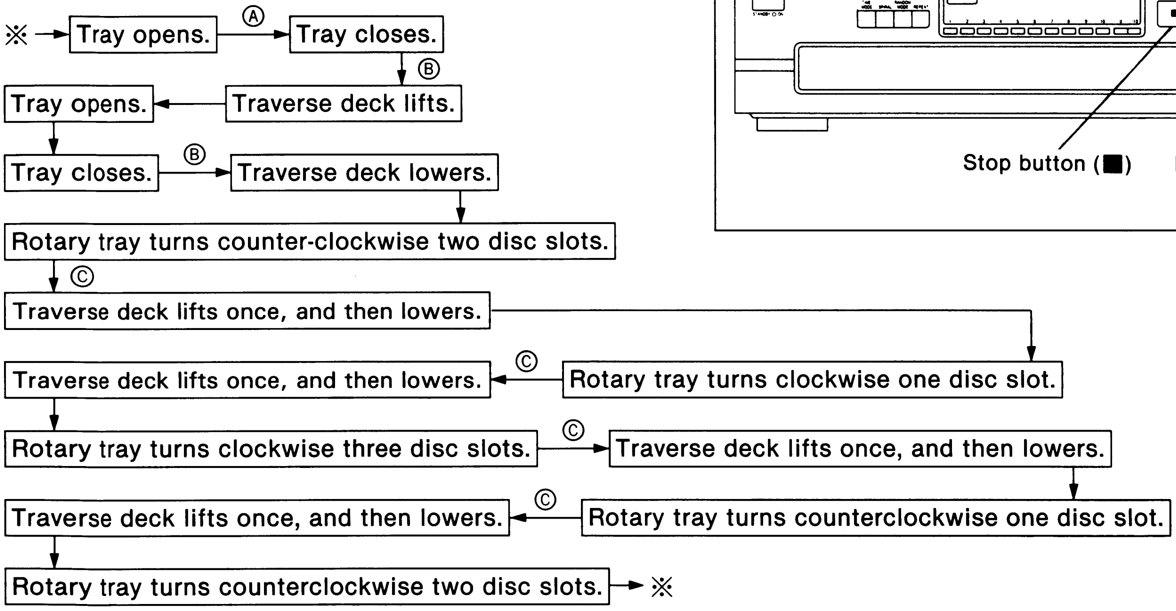
**Display procedure**

**Entering the Self-Diagnostic Mode**

1. With no CD loaded in the tray, turn on the unit.
2. Unplug the power cord of the unit, and then plug it back in while pressing the STOP (■), PLAY (▶) and DISC 4 buttons together. This will bring up the FL display.
3. Release the above three buttons.

**To Display Self-Diagnostic Results**

1. When the FL display lights up, the unit automatically repeats an approximately 50-second cycle of the following operations.


※
Tray opens.
Ⓐ
Tray closes.
Ⓑ
Traverse deck lifts.
Tray opens.
Tray closes.
Ⓑ
Traverse deck lowers.
Rotary tray turns counter-clockwise two disc slots.
Ⓒ
Traverse deck lifts once, and then lowers.
Rotary tray turns clockwise one disc slot.
Ⓒ
Traverse deck lifts once, and then lowers.
Rotary tray turns clockwise three disc slots.
Ⓒ
Traverse deck lifts once, and then lowers.
Rotary tray turns counterclockwise one disc slot.
Ⓒ
Traverse deck lifts once, and then lowers.
Rotary tray turns counterclockwise two disc slots.
※

2. Self-diagnostic fault results appear on the FL display for approximately one second as "H15" at location Ⓐ, "H16" at Ⓑ and "F18" at Ⓒ, during the above cycle.
3. If there are no faults as a result of self-diagnostic, "00TRACK 00:00 " appears on the FL display.

**To Return to Normal Display**

- Press the power button to turn off the unit, and then turn it on again.

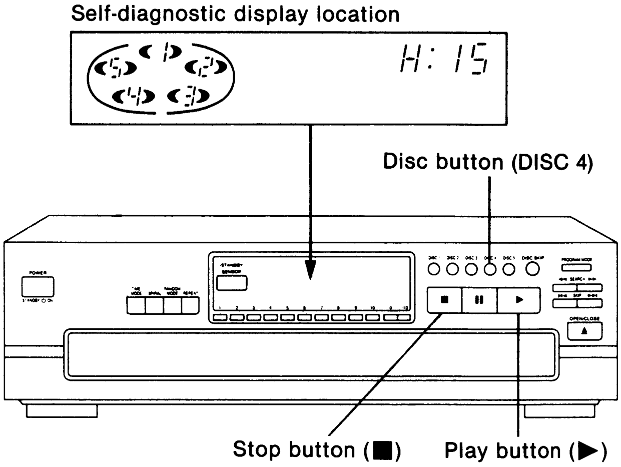
**To Display Self-Diagnostic Results Again**

- Follow steps 1 through 3 of "Entering Self-Diagnostic Mode" above.

**To Clear the Display of Self-Diagnostic Results**

- Turn off the unit to clear the contents of the stored fault results.

**Display location**


Self-diagnostic display location
H: 15
Disc button (DISC 4)
Stop button (■)
Play button (▶)

## Interpretation of error codes

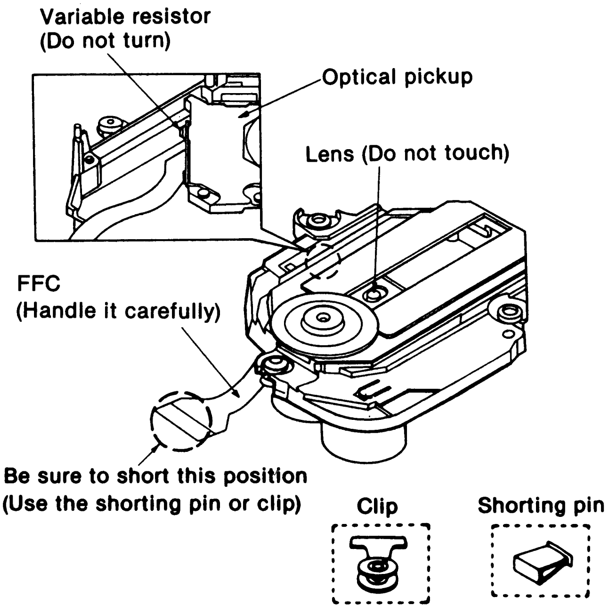
| Error code | Problem condition | Correction procedure |
|---|---|---|
| H15 | CD tray does not open or close when CD tray open/close (▲) button is pressed. | Faulty loading motor and motor drive IC (IC501), or faulty contact or short-circuit on open/close detect switch, S551.<br>(Check and replace) |
| H16 | When the CD tray open/close (▲) button is pressed, the CD tray closes momentarily but then opens again, or opens momentarily and then closes again. | |
| F18 | Faulty rotary turret rotation detection.<br>Example: The turret continues to turn at the initial position without stopping. | Check the optical sensor (D501) and replace if necessary. |

# ■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

## • Handling of traverse deck (optical pickup)

1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an antistatic shorting pin is inserted into the flexible board (FFC).
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FFC).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

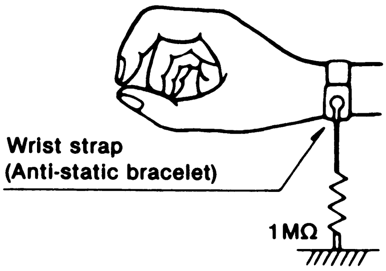

Variable resistor
(Do not turn)
Optical pickup
Lens (Do not touch)
FFC
(Handle it carefully)
Be sure to short this position
(Use the shorting pin or clip)
Clip
Shorting pin

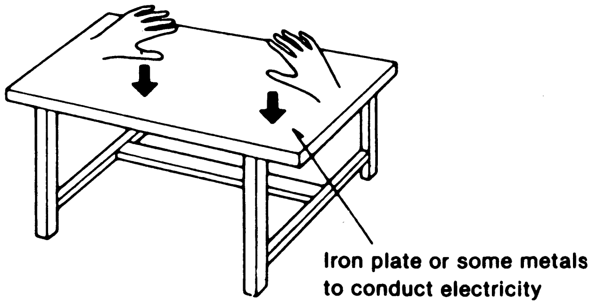
## • Grounding for electrostatic breakdown prevention

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table gounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

**Caution:**

The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

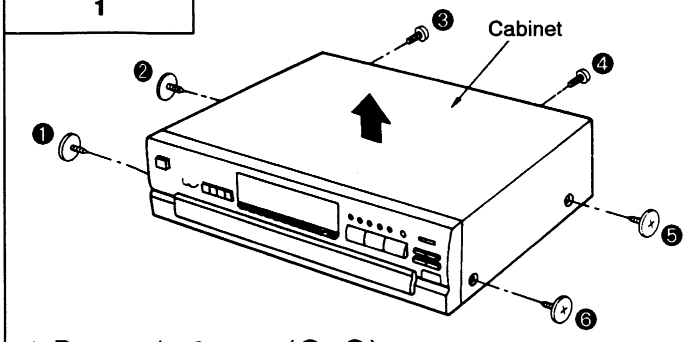

Wrist strap
(Anti-static bracelet)
1 MΩ


Iron plate or some metals
to conduct electricity

# DISASSEMBLY INSTRUCTIONS

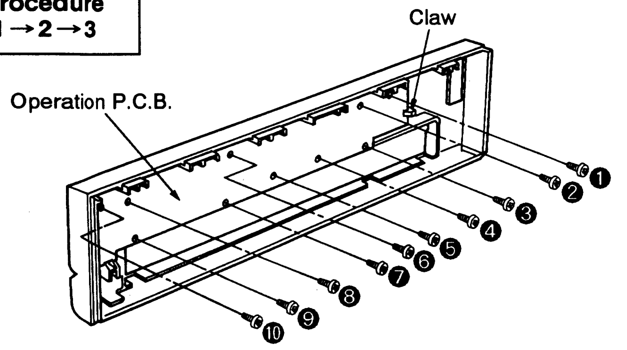
**"ATTENTION SERVICER"**
Some chassis components may have sharp edges. Be careful when disassembling and servicing.
**Warning:** This product uses a laser diode. Refer to caution statements on page 2.
**ACHTUNG:** • Die lasereinheit nicht zerlegen.
• Die lasereinheit dart nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

| **Ref.No.**<br>**1** | **Removal of the cabinet** |
|---|---|
| **Procedure**<br>**1** | |

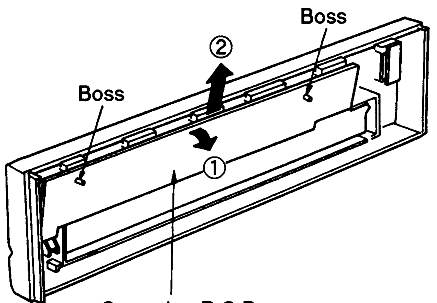

❸
Cabinet
❹
❷
❶
❺
❻

1. Remove the 6 screws(❶ ~ ❻).
2. Remove the cabinet in the direction of arrow.

| **Ref.No.**<br>**3** | **Removal of the operation P.C.B.** |
|---|---|
| **Procedure**<br>**1→2→3** | |

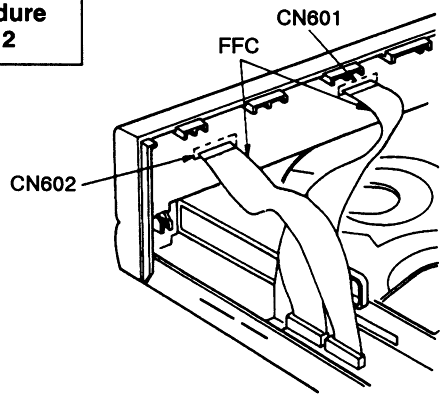

Claw
Operation P.C.B.
❶
❷
❸
❹
❺
❻
❼
❽
❾
❿

1. Remove the 10 screws(❶ ~ ❿).
2. Release the 1 claw.

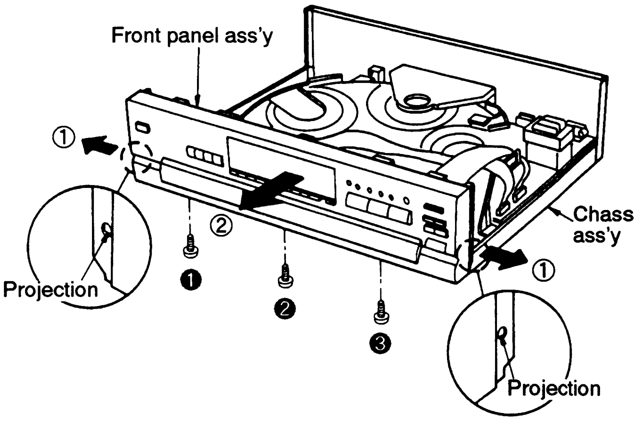

Boss
②
Boss
①
Operation P.C.B.

3. Tilt the operation P.C.B. in the direction of arrow① and release the bosses. Then, remove the operation P.C.B. in the direction of arrow②.

| **Ref.No.**<br>**2** | **Removal of the front panel ass'y** |
|---|---|
| **Procedure**<br>**1→2** | |

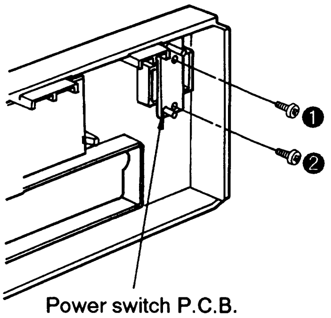

CN601
FFC
CN602

1. Pull out the FFC from connectors(CN601, CN602).


Front panel ass'y
①
②
Chassis ass'y
①
Projection
❶
❷
❸
Projection

2. Remove the 3 screws(❶ ~ ❸).
3. Pull the front panel ass'y in both direction of arrow① to unlock it from the projections of the chassis ass'y.
4. Remove the front panel ass'y in the direction of arrow②.

| **Ref.No.**<br>**4** | **Removal of the power switch P.C.B.** |
|---|---|
| **Procedure**<br>**1→2→4** | |

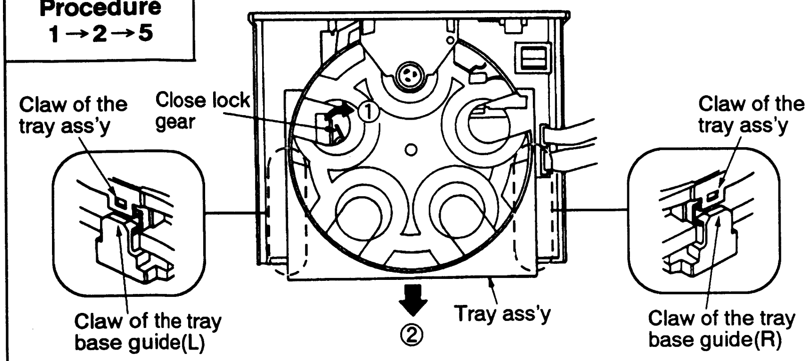

❶
❷
Power switch P.C.B.

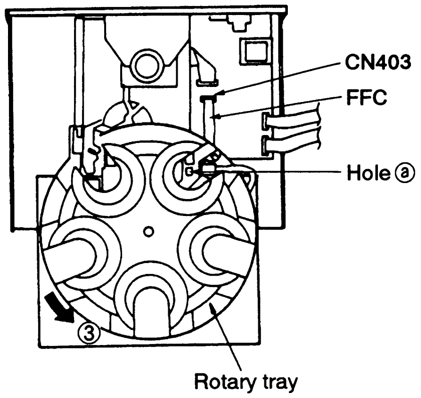
- Remove the 2 screws(❶, ❷).

**Ref.No.**
**5**

### Removal of the tray ass'y

**Procedure**
**1→2→5**


Claw of the tray ass'y
Close lock gear
①
Claw of the tray ass'y
Claw of the tray base guide(L)
②
Tray ass'y
Claw of the tray base guide(R)

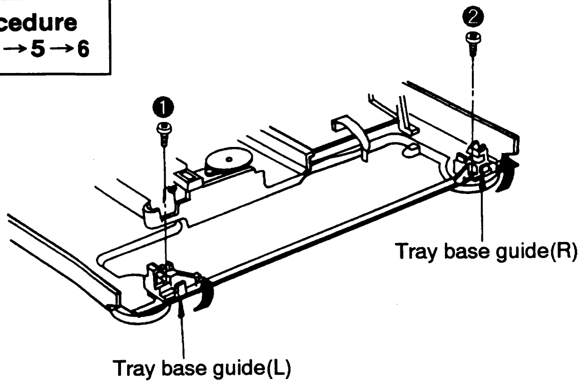

CN403
FFC
Hole ⓐ
③
Rotary tray

1. Keep the close lock gear pressed in the direction of arrow ①, and move the tray ass'y in the direction of arrow ②.
2. Fit the claw of the tray ass'y in the claw of the tray base guide(L).
3. Fit the claw of the tray ass'y in the claw of the tray base guide(R).
4. Pull out the FFC from connector(CN403).
5. Rotate the rotary tray to the position that can be confirmed the hole ⓐ in the direction of arrow ③.

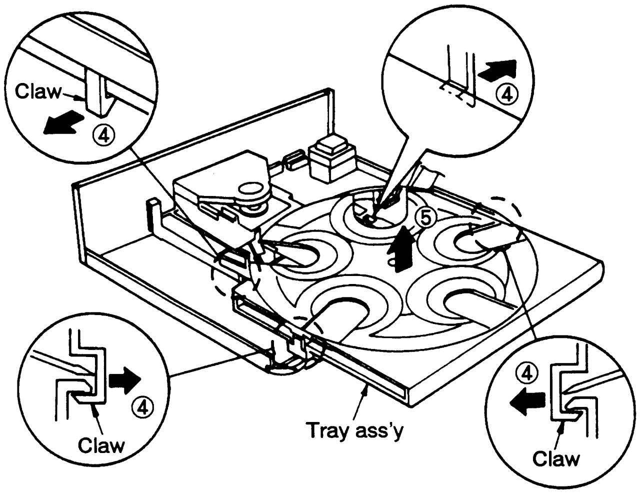
**Ref.No.**
**6**

### Removal of the tray base guide(L) and tray base guide(R)

**Procedure**
**1→2→5→6**


❷
❶
Tray base guide(R)
Tray base guide(L)

1. Remove the 2 screws( ❶, ❷ ).
2. Remove the tray base guide(L) and tray base guide(R) in the direction of arrow.


Claw
④
④
⑤
Claw
④
Tray ass'y
④
Claw

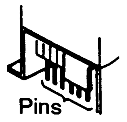
5. Push and release the 4 claws in the direction of arrow ④, and then remove the tray ass'y in the direction of arrow ⑤.

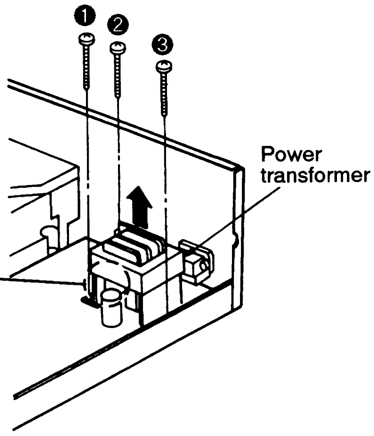
**Ref.No.**
**7**

### Removal of the power transformer

**Procedure**
**1→7**

※ Be careful not to bend the pins of power transformer.



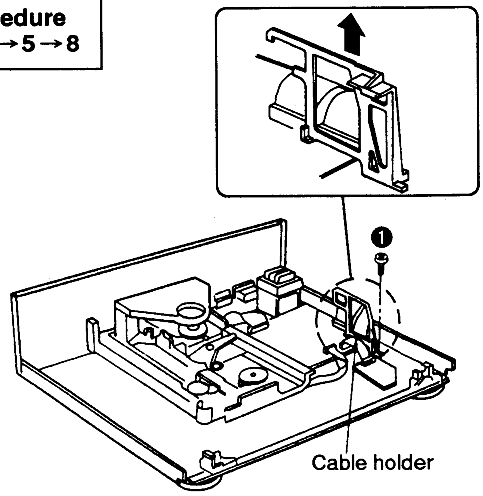

❶
❷
❸
Power transformer

1. Remove the 3 screws( ❶ ~ ❸ ).
2. Remove the power transformer in the direction of arrow.

**Ref.No.**
**8**

### Removal of the cable holder

**Procedure**
**1→2→5→8**

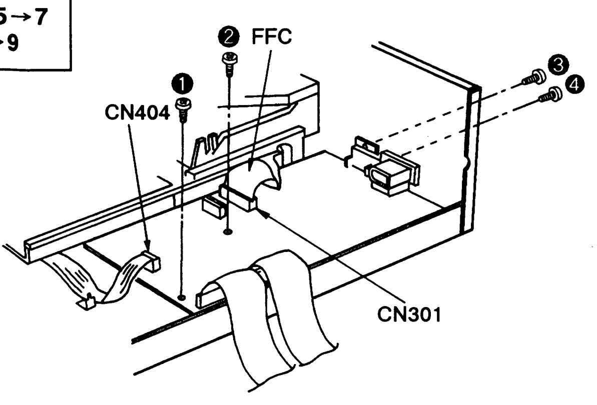

❶
Cable holder

1. Remove the 1 screw( ❶ ).
2. Lift the cable holder in the direction of arrow.

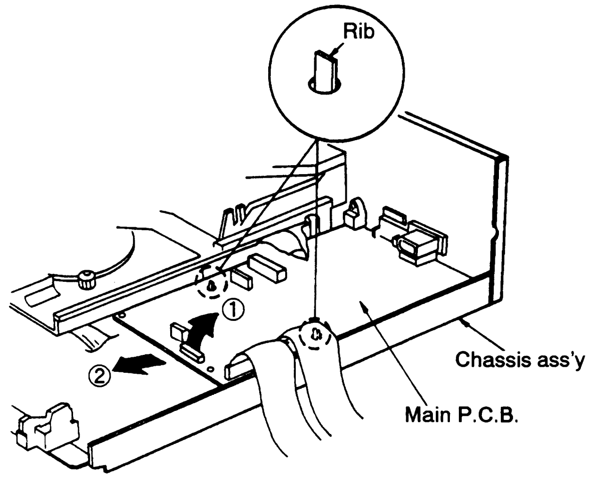
**Ref.No.**
**9**

## Removal of the main P.C.B. and D/A CONV. P.C.B.

**Procedure**
**1→2→5→7→8→9**


❷ FFC
❶
CN404
❸
❹
CN301

1. Pull out the FFC from connector(CN301).
2. Remove 1 connector(CN404).
3. Remove the 4 screws(❶ ~ ❹).

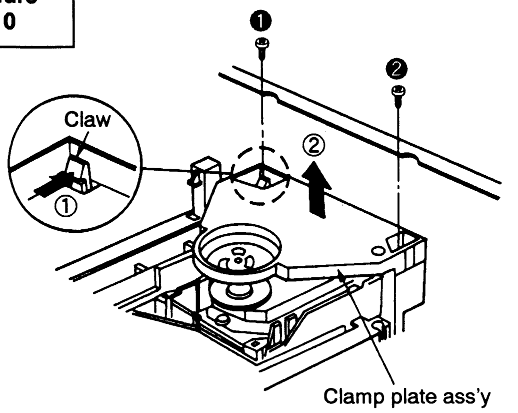

Rib
①
②
Chassis ass'y
Main P.C.B.

4. Lift up the main P.C.B. in the direction of arrow①, and release the 2 ribs on the chassis ass'y. Then , remove the main P.C.B. in the direction of arrow②.

**Ref.No.**
**10**

## Removal of the clamp plate ass'y

**Procedure**
**1→10**

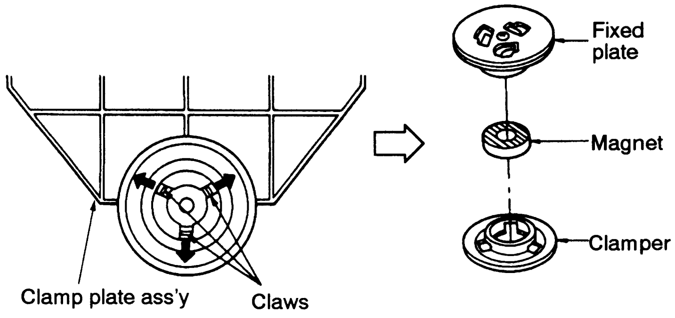

❶
❷
Claw
①
②
Clamp plate ass'y

1. Remove the 2 screws(❶, ❷).
2. Push the claw in the direction of arrow①, and then remove the clamp plate ass'y in the direction of arrow②.

**Ref.No.**
**11**

## Removal of the fixed plate, magnet and clamper

**Procedure**
**1→10→11**

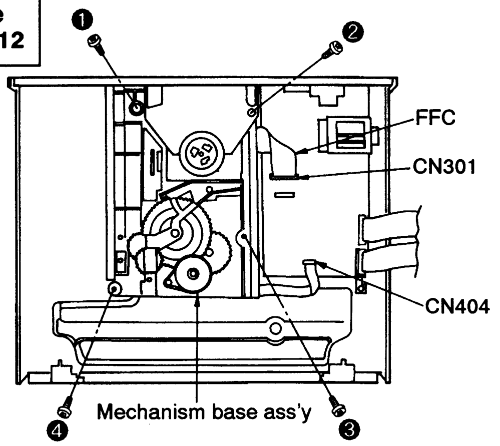

Fixed plate
Magnet
Clamper
Clamp plate ass'y
Claws

- Release the 3 claws in the direction of arrow.

**Ref.No.**
**12**

## Removal of the mechanism base ass'y

**Procedure**
**1→2→5→12**

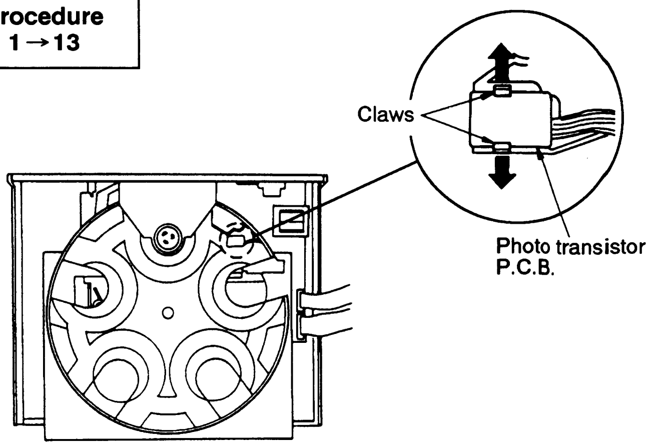

❶
❷
FFC
CN301
CN404
Mechanism base ass'y
❹
❸

1. Pull out the FFC from connector(CN301).
2. Remove 1 connector(CN404).
3. Remove the 4 screws(❶ ~ ❹).

**Ref.No.**
**13**

## Removal of the photo transistor P.C.B.

**Procedure**
**1→13**

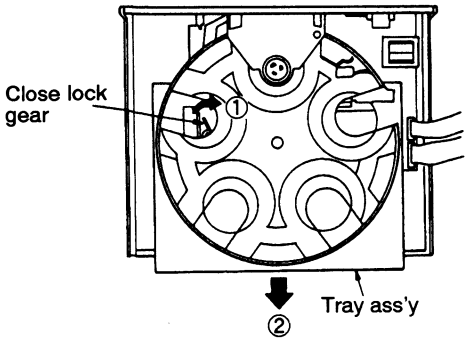

Claws
Photo transistor P.C.B.

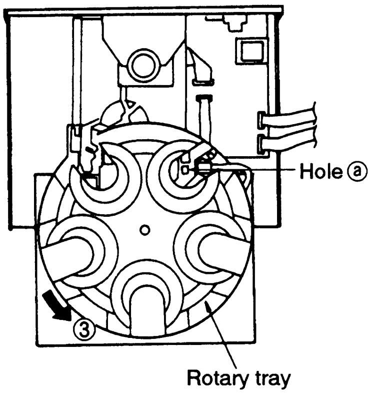
- Release the 2 claws in the direction of arrow.

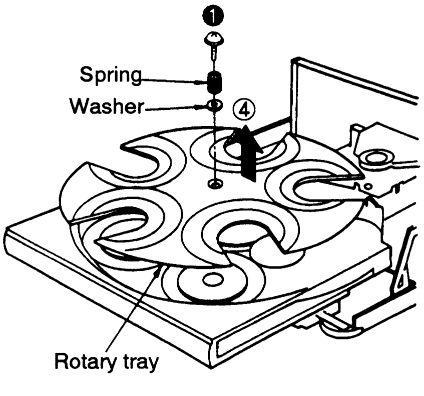
**Ref.No.**
**14**

### Removal of the rotary tray

**Procedure**
1→2→14


Close lock gear
①
②
Tray ass'y


Hole ⓐ
③
Rotary tray

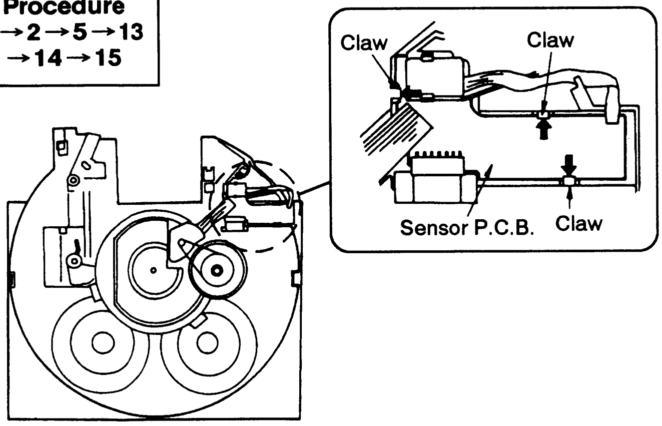

❶
Spring
Washer
④
Rotary tray

1. Keep the close lock gear pressed in the direction of arrow①, and move the tray ass'y in the direction of arrow②.
2. Rotate the rotary tray to the position that can be confirmed the hole ⓐ in the direction of arrow③.
3. Remove the 1 screw(❶).
4. Remove the spring and washer.
5. Remove the rotary tray in the direction of arrow④.

**Ref.No.**
**15**

### Removal of the sensor P.C.B.

**Procedure**
1→2→5→13
→14→15

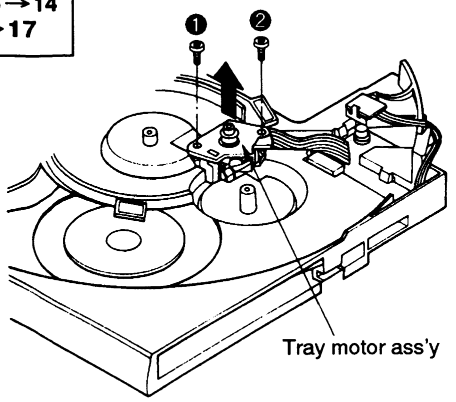

Claw
Claw
Sensor P.C.B.
Claw

- Release the 3 claws in the direction of arrow, and remove the sensor P.C.B.

**Ref.No.**
**17**

### Removal of motor holder and tray motor ass'y

**Procedure**
1→2→5→14
→16→17

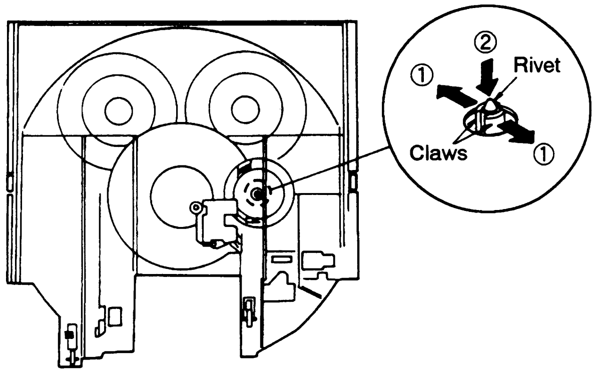

❶
❷
Tray motor ass'y

1. Remove the 2 screws(❶, ❷).
2. Remove the motor holder and tray motor ass'y in the direction of arrow.

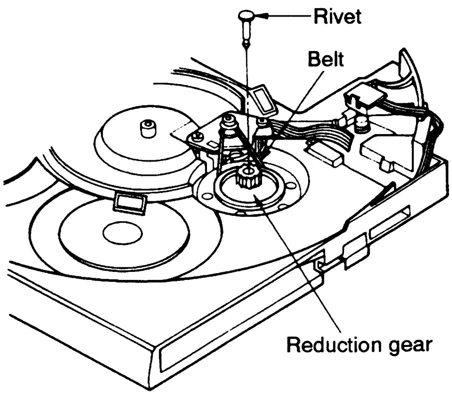
**Ref.No.**
**16**

### Removal of reduction gear

**Procedure**
1→2→5→14
→16


②
Rivet
①
Claws
①

1. Release the 2 claws in the direction of arrow①, and then push the rivet in the direction of arrow②.

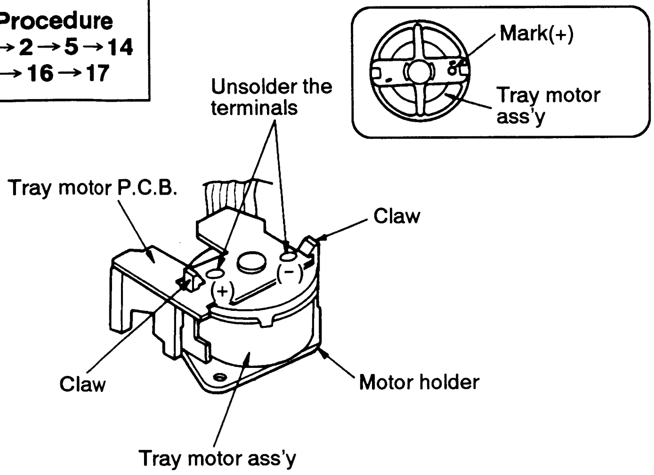

Rivet
Belt
Reduction gear

2. Pull out the rivet.
3. Remove the belt.
3. Remove the reduction gear.

**Ref.No. 18**

## Removal of the tray motor P.C.B.

**Procedure**
1→2→5→14→16→17

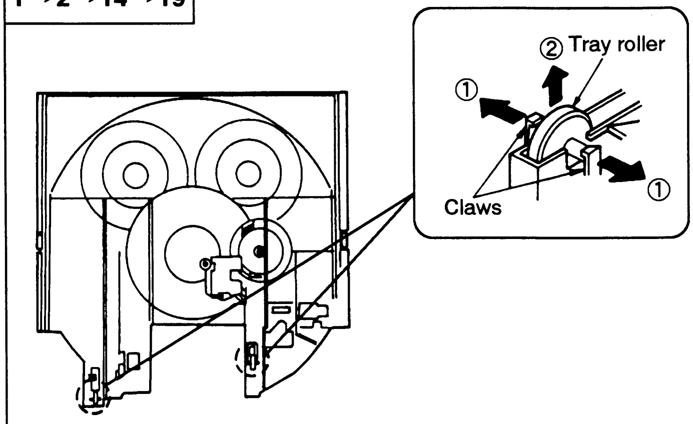

Mark(+)
Tray motor ass'y
Unsolder the terminals
Tray motor P.C.B.
Claw
(+)
(-)
Claw
Motor holder
Tray motor ass'y

1. Release the 2 claw, and then remove the motor holder.
2. Unsolder the terminals of the tray motor ass'y.

**Ref.No. 19**

## Removal of the tray roller

**Procedure**
1→2→14→19

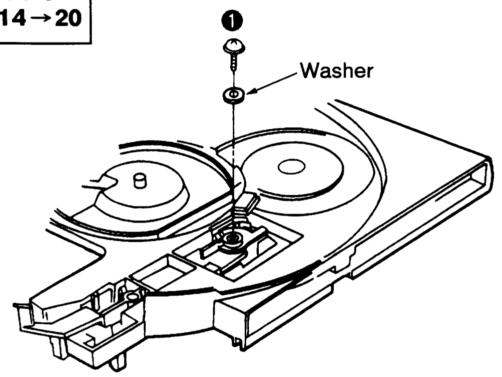

② Tray roller
①
①
Claws

- Release the 2 claws in the direction of arrow①, and then remove the tray roller in the direction of arrow②.

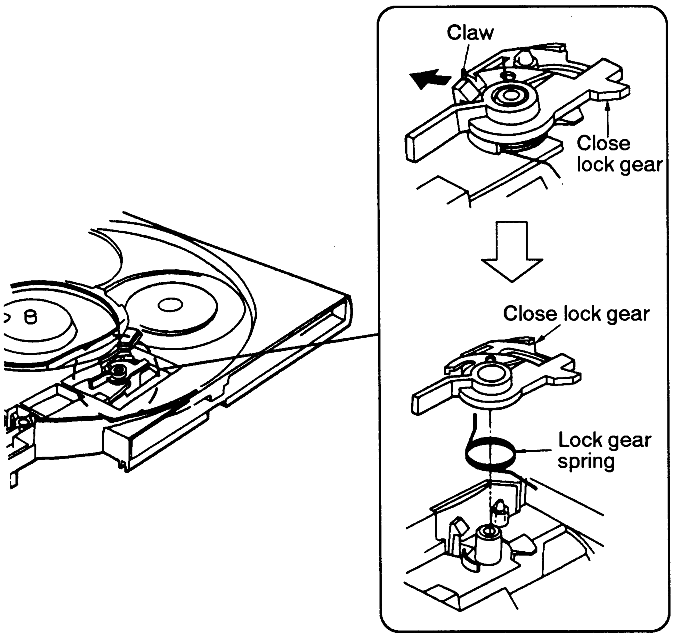
**Ref.No. 20**

## Removal of the close lock gear

**Procedure**
1→2→14→20



1. Remove the 1 screw(❶) and washer.

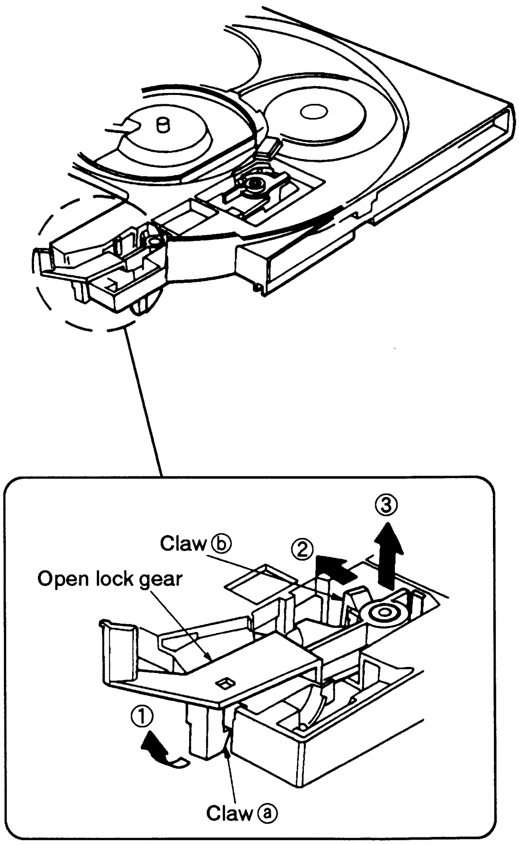

Claw
Close lock gear
Close lock gear
Lock gear spring

2. Release the 1 claw and then remove the close lock gear and lock gear spring.

**Ref.No. 21**

## Removal of the open lock gear

**Procedure**
1→2→5→14→21

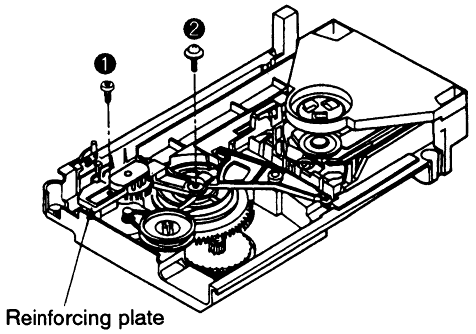

③
Claw ⓑ
②
Open lock gear
①
Claw ⓐ

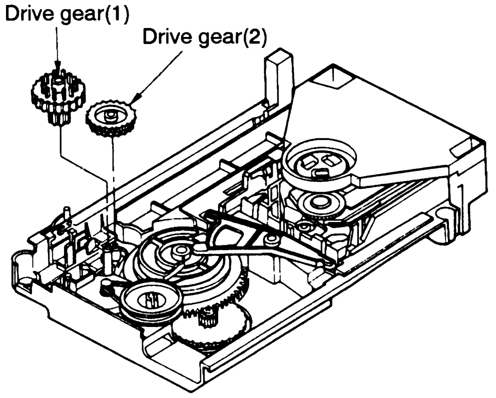
1. Release the claw ⓐ of open lock gear in the direction of arrow①.
2. Release the claw ⓑ of open lock gear in the direction of arrow②, and then remove the of open lock gear in the direction of arrow③.

**Ref.No.**
**22**

### Removal of the reinforcing plate, drive gear(1) and drive gear(2)

**Procedure**
**1→2→5→22**


❶
❷
Reinforcing plate

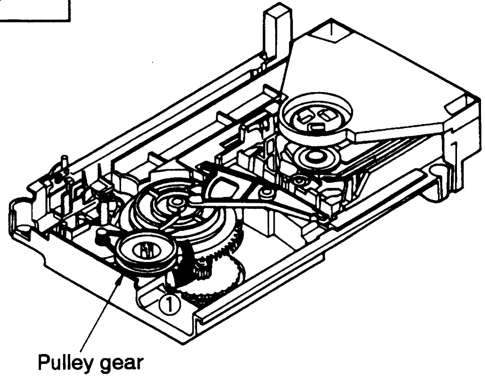

Drive gear(1)
Drive gear(2)

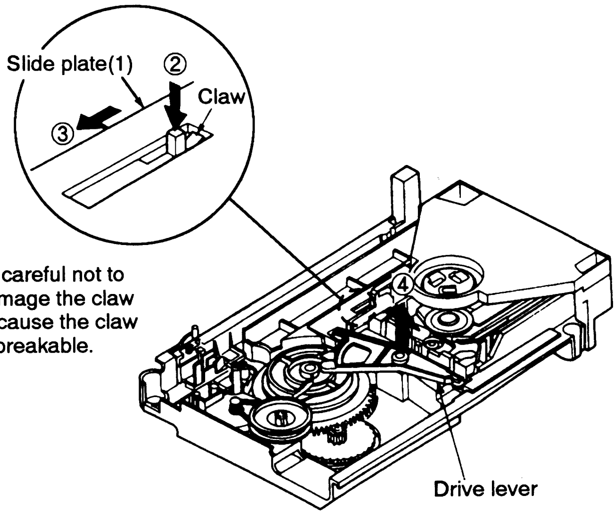
1. Remove the 2 screws(❶, ❷).
2. Remove the reinforcing plate.
3. Remove the drive gear(1) and drive gear(2).

**Ref.No.**
**23**

### Removal of the drive lever

**Procedure**
**1→2→5→22**
**→23**


①
Pulley gear


Slide plate(1)
②
Claw
③
④
Drive lever

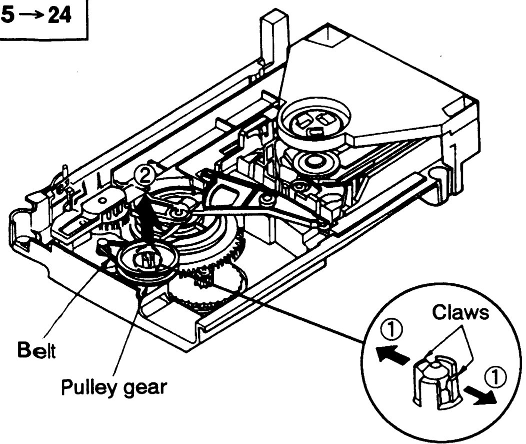
**Note)** Be careful not to damage the claw because the claw is breakable.

1. Rotate the pulley gear to full position in the direction of arrow①.
2. Push the claw in the direction of arrow②, and then move the slide plate(1) in the direction of arrow③.
3. Remove the drive lever in the direction of arrow④.

**Ref.No.**
**24**

### Removal of the pulley gear

**Procedure**
**1→2→5→24**

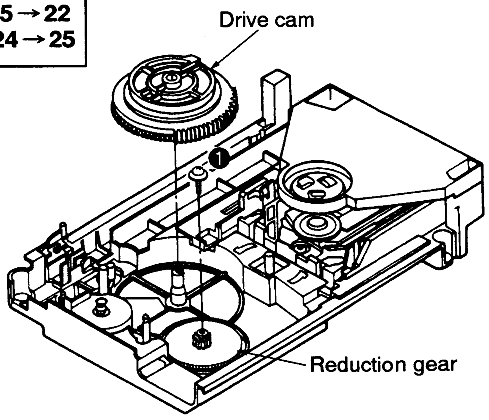

②
Belt
Pulley gear
Claws
①
①

1. Remove the belt.
2. Release the 2 claws in the direction of arrow①, and then remove the pulley gear in the direction of arrow②.

**Ref.No.**
**25**

### Removal of the drive cam and reduction gear

**Procedure**
**1→2→5→22**
**→23→24→25**

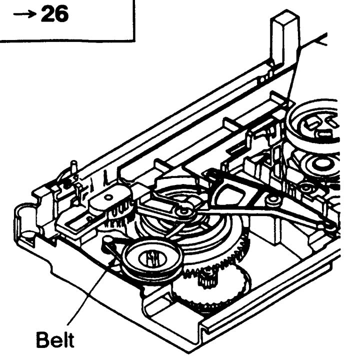

Drive cam
❶
Reduction gear

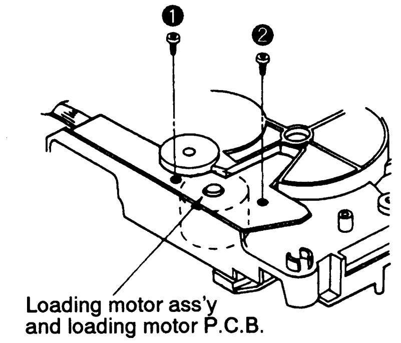
1. Remove the drive cam.
2. Remove 1 screw(❶).
3. Remove the reduction gear.

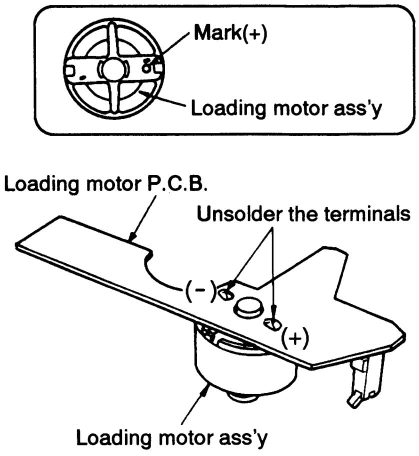
**Ref.No. 26**

## Removal of the loading motor ass'y and loading motor P.C.B.

**Procedure**
**1→2→5→12→26**




❶
❷
Loading motor ass'y and loading motor P.C.B.

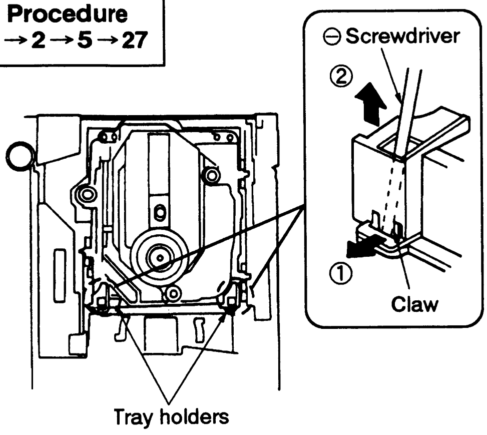

Mark(+)
Loading motor ass'y
Loading motor P.C.B.
Unsolder the terminals
(-)
(+)
Loading motor ass'y

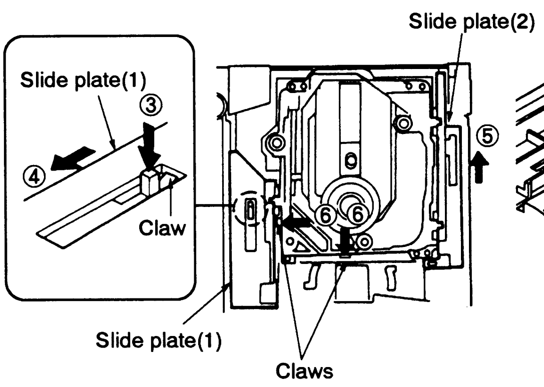
1. Remove the belt.
2. Remove the 2 screws(❶, ❷).
3. Remove the loading motor ass'y and loading motor P.C.B.
4. Unsolder the terminals of the loading motor ass'y.

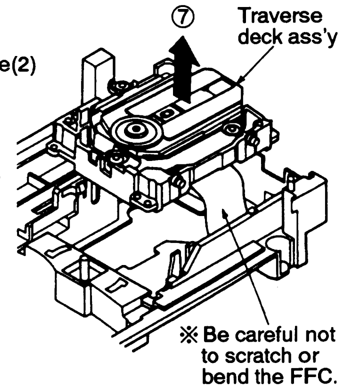
**Ref.No. 27**

## Removal of the traverse deck ass'y

**Procedure**
**1→2→5→27**


⊖ Screwdriver
②
①
Claw
Tray holders


Slide plate(1)
③
④
Claw
Slide plate(2)
⑤
⑥
⑥
Slide plate(1)
Claws

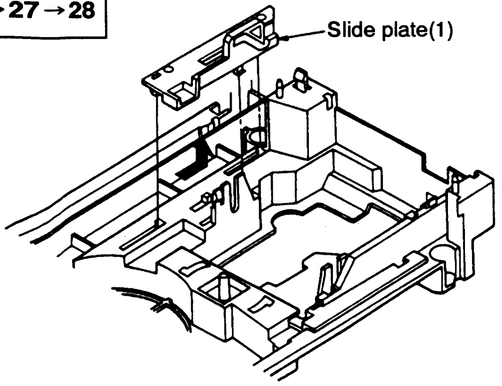

⑦
Traverse deck ass'y
※ Be careful not to scratch or bend the FFC.

1. While pushing the claw of tray holders in the direction ① using the ⊖ screwdriver, remove the tray holder in the direction of arrow ②.
2. Push the claw in the direction of arrow ③, and then move the slide plate(1) in the direction of arrow ④.
3. Move the slide plate(2) in the direction of arrow ⑤.
4. Release the 2 claws in the direction of arrow ⑥, and then remove the traverse deck ass'y in the direction of arrow ⑦.

**Ref.No. 28**

## Removal of the slide plate(1)

**Procedure**
**1→2→5→22→23→27→28**

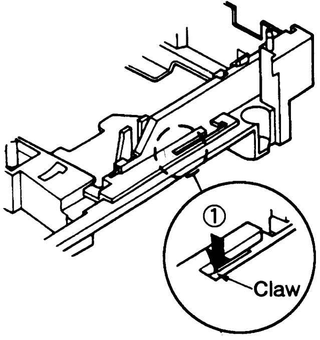

Slide plate(1)

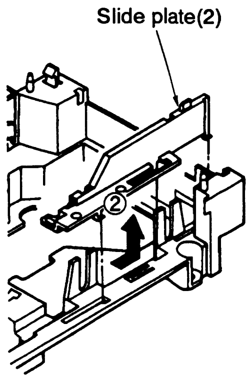
- Remove the slide plate(1) in the direction of arrow.

**Ref.No. 29**

## Removal of the slide plate(2)

**Procedure**
**1→2→5→22→23→27→29**



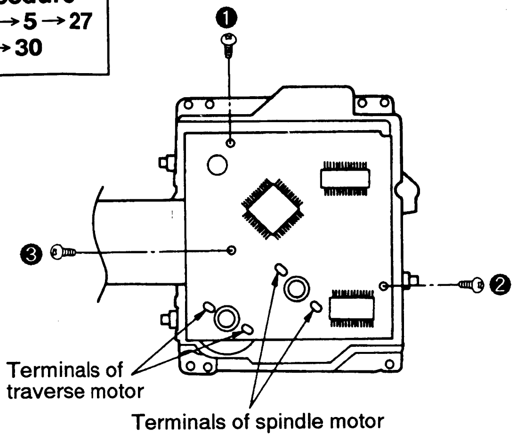

Slide plate(2)
②

- Push the claw in the direction of arrow ①, and then remove the slide plate(2) in the direction of arrow ②.

**Ref.No. 30**

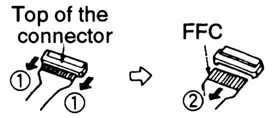
## Removal of the servo P.C.B.

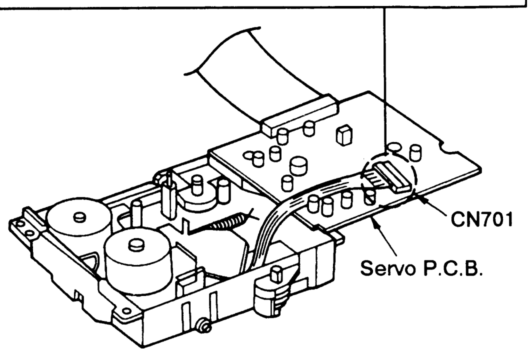
**Procedure**
**1→2→5→27→30**


❶
❷
❸
Terminals of traverse motor
Terminals of spindle motor

1. Remove the 3 screws(❶~❸).
2. Unsolder the 2 terminals of spindle motor.
3. Unsolder the 2 terminals of traverse motor.

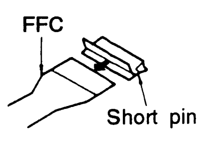
1. Push the top of the connector in the direction of arrow ①.
2. Remove the FFC in the direction of arrow ②.


Top of the connector
FFC
①
①
②


CN701
Servo P.C.B.

4. Remove the FFC from connector(CN701).

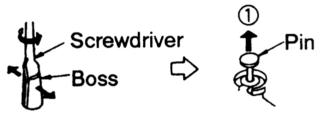
**Caution:**
Insert a short pin into the traverse unit FFC.
(Refer to " handling precautions for traverse deck " on page 9.)


FFC
Short pin

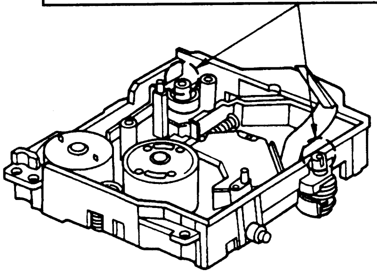
**Ref.No. 31**

## Removal of the traverse deck ass'y

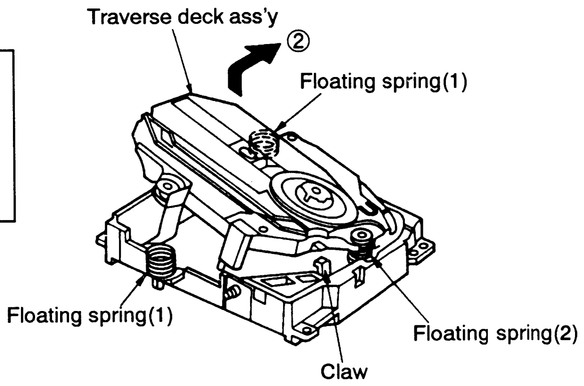
**Procedure**
**1→2→5→27→30→31**


Screwdriver
Boss
①
Pin

1. Widen the bosses by using a regular screwdriver or similar object.
2. Pull out the pins.



1. Remove the 2 pins in the direction of arrow①.


Traverse deck ass'y
②
Floating spring(1)
Floating spring(1)
Floating spring(2)
Claw

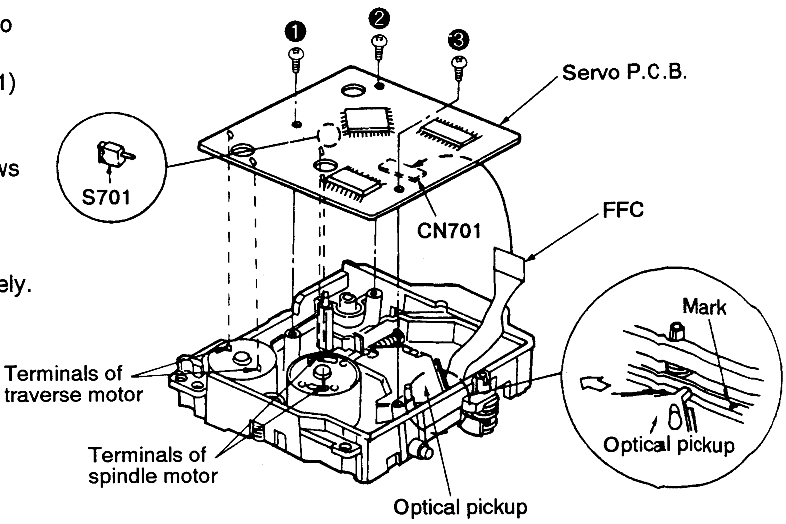
2. Release the claw, and then remove the traverse deck ass'y in the direction of arrow②.

**Caution:**
Be careful not to lose the 3 springs because those will also be removed on removal of the traverse deck ass'y.

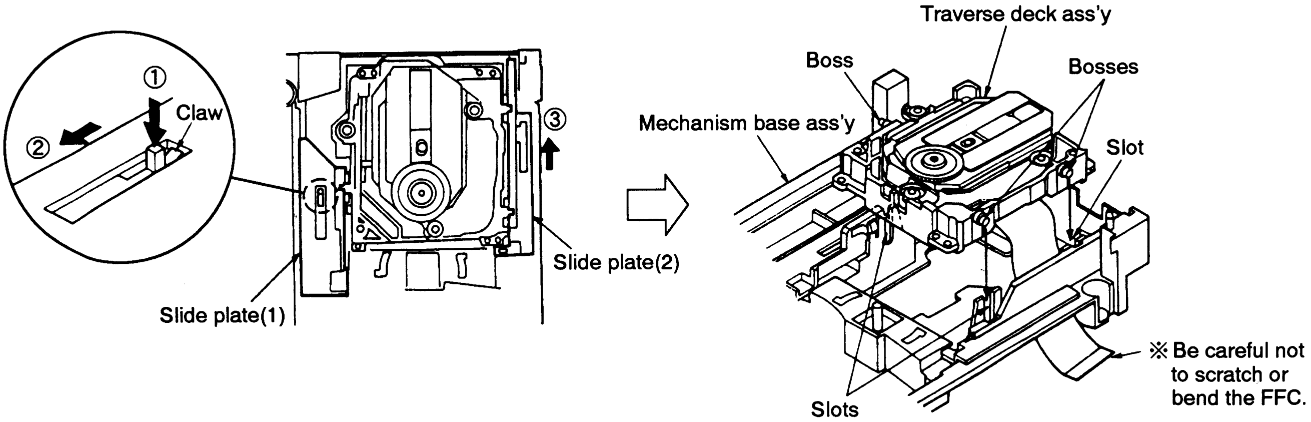
## ■ INSTALLATION OF SERVO P.C.B.

1. When installing servo P.C.B., move the optical pickup to the more external side than the mark (▲).
   (When the optical pickup is not moved, the switch(S701) on the servo P.C.B. may be broken.)
2. Connect the FFC to the connector(CN701).
3. Install the servo P.C.B. to the traverse unit with 3 screws (❶~❸).
4. Solder the 2 terminals of the traverse motor and the 2 terminals of the spindle motor.

**Note:** • Insert the FFC into the connector and lock securely.
After installing the motor with screws, solder
• each motor terminal.

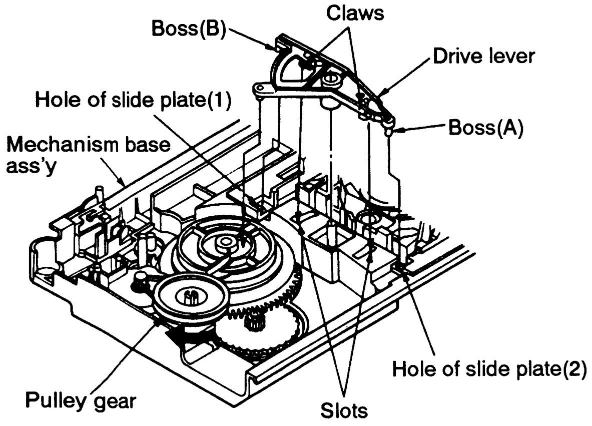

❶
❷
❸
Servo P.C.B.
S701
CN701
FFC
Mark
Optical pickup
Terminals of traverse motor
Terminals of spindle motor
Optical pickup

## Installation of the traverse deck ass'y


①
②
Claw
③
Slide plate(1)
Slide plate(2)
Traverse deck ass'y
Boss
Bosses
Mechanism base ass'y
Slot
Slots
※ Be careful not to scratch or bend the FFC.

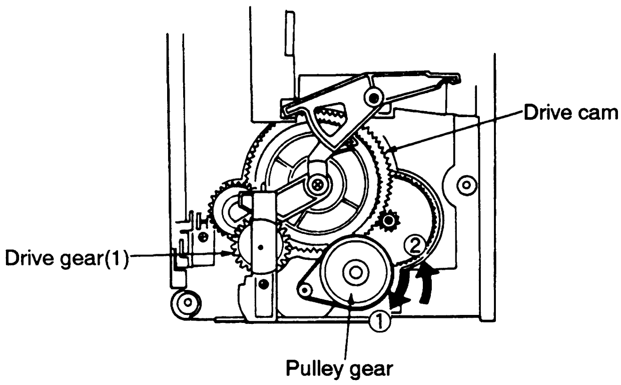
1. Push the claw in the direction of arrow①, and then move the slide plate(1) in the direction of arrow②.
2. Move the slide plate(2) in the direction of arrow③.
3. Align the 3 bosses of traverse deck ass'y with the slots of mechanism base ass'y.

## Installation of the drive lever


Boss(B)
Claws
Drive lever
Hole of slide plate(1)
Boss(A)
Mechanism base ass'y
Hole of slide plate(2)
Pulley gear
Slots

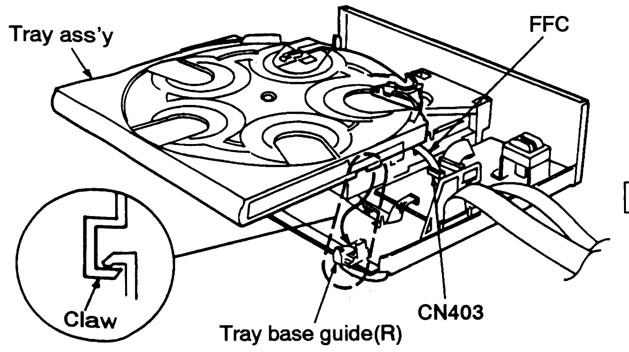
1. Rotate the pulley gear to full position in the direction of arrow.
2. Align the boss(A) with the hole of slide plate(2).
3. Align the boss(B) with the hole of slide plate(1).
4. Align the claws of drive lever with the slots of loading mechanism ass'y.

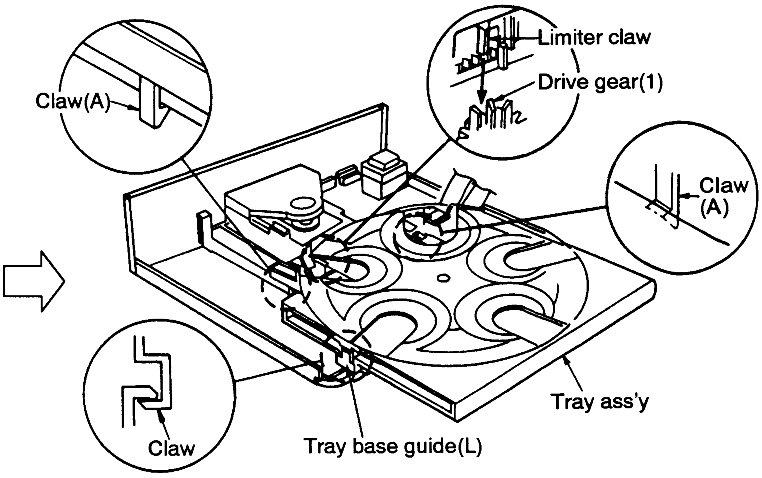
## Positioning of the drive cam


Drive cam
Drive gear(1)
②
①
Pulley gear

1. Rotate the pulley gear to full position in the direction of arrow①.
2. Then, rotate the pulley gear in the direction of arrow②.
3. When the drive gear(1) stops rotating, turn off that pulley gear is rotating.

## Installation of the tray ass'y


Tray ass'y
FFC
Claw
Tray base guide(R)
CN403


Claw(A)
Limiter claw
Drive gear(1)
Claw (A)
Claw
Tray base guide(L)
Tray ass'y

1. Attach the FFC to the connector(CN403).
2. Fit the claws on the right side of the tray ass'y underneath the claws on the tray base guide(R).
3. Fit the claws on the right side of the tray ass'y underneath the claws on the tray base guide(L).
4. Fit the limiter claw on the tray ass'y between the teeth of the drive gear(1).
5. Catch the 2 claws(A) with the mechanism base ass'y.
6. After installing the tray ass'y, check that it moves smoothly.

## ■ HOW TO CHECK THE MAIN AND SERVO P.C.B.

1. Remove the cabinet. (See Ref.No.1 of the disassembly instructions.)
2. Remove the front panel ass'y. (See Ref.No.2 of the disassembly instructions.)
3. Remove the tray ass'y. (See Ref.No.5 of the disassembly instructions.)
4. Remove the cable holder. (See Ref.No.8 of the disassembly instructions.)
5. Remove the clamp plate ass'y. (See Ref.No.10 of the disassembly instructions.)
6. Remove the fixed plate, magnet and clamper. (See Ref.No.11 of the disassembly instructions.)

- **Check the main P.C.B.**

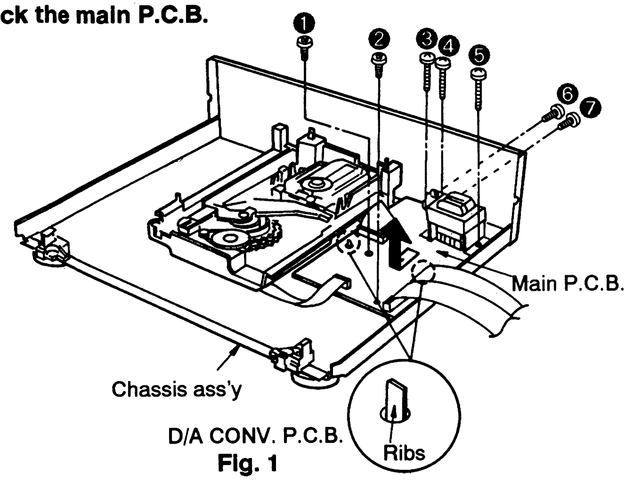


**Fig. 1**

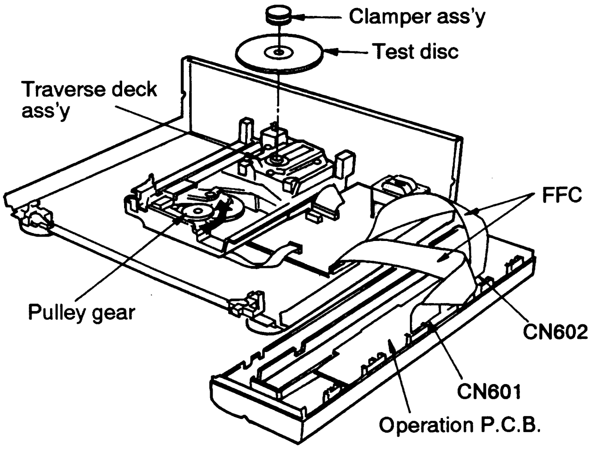
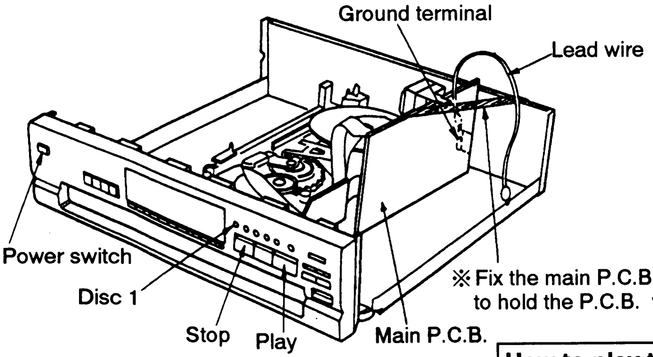


**Fig. 2**

7. Remove the 7 screws(❶ ~ ❼).
8. Lift up the main P.C.B. to release the 2 ribs of chassis ass'y, and then remove the main P.C.B. in the direction of arrow.
9. Rotate the pulley gear in the direction of arrow until traverse deck ass'y comes up.
10. Place the test disc and secure it by using the clamper ass'y.
11. Connect the 2 FFC (CN601, CN602) as shown in Fig. 2.
12. Set up the main P.C.B.
13. Connect the main P.C.B. ground terminal (line out terminal) to the chassis ass'y with a lead wire.
14. When checking the soldered surface of the main P.C.B., do as shown in Fig. 3.



※ Fix the main P.C.B. with adhesive tape to hold the P.C.B. vertically.

**Fig. 3**

**How to play the disc**

Unplug the set previously.

↓

While pressing 3 keys of STOP(■), PLAY(▶), and DISC 1 simultaneously, insert the power plug of the set into the plug socket.

**NOTE:**
Be sure to begin pressing the 3 keys before plugging the set. Otherwise, the Service Mode cannot be set.

↓

FL lights up?

**No** → Press the POWER key (POWER ON). → FL lights up. → Withdraw hand from the 3 keys.

**Yes** ↓

Withdraw hand from the 3 keys.

↓

Mount the disc on the turntable and press the PLAY key.

**NOTE:**
Make sure that the traverse mechanism is then in UP(PLAY)position.

**Service Mode setting**

When checking the main/servo P.C.B. of this set, remove the rotary tray previously.
After the rotary tray is removed, the microcomputer is kept from issuing PLAY command even when the PLAY key is pressed.
Stated above is the procedure of setting the Service Mode for keeping the microcomputer in the PLAY mode even after removal of the rotary tray.

**● Check the servo P.C.B.**

7. Remove the mechanism base ass'y. (See Ref.No.12 of the disassembly instructions.)
8. Remove the traverse deck ass'y. (See Ref.No.27 of the disassembly instructions.)

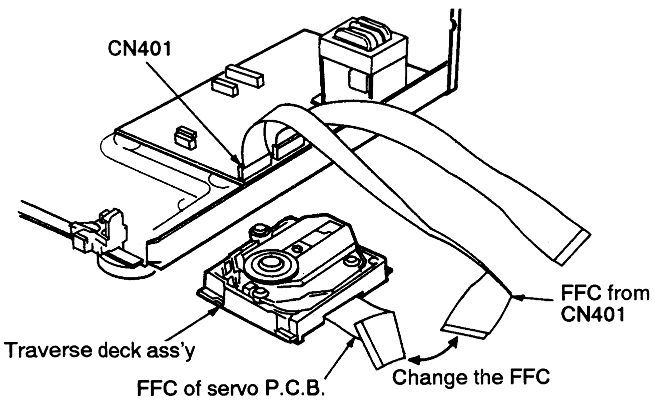

CN401
FFC from CN401
Traverse deck ass'y
FFC of servo P.C.B.
Change the FFC

Fig. 4

9. Replace the FFC of servo P.C.B. to the FFC (CN401) of main P.C.B.

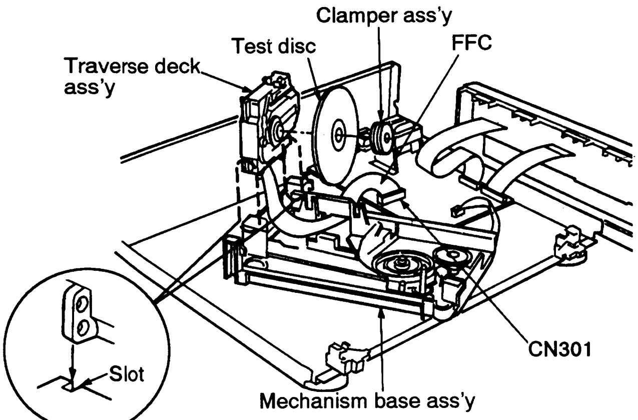
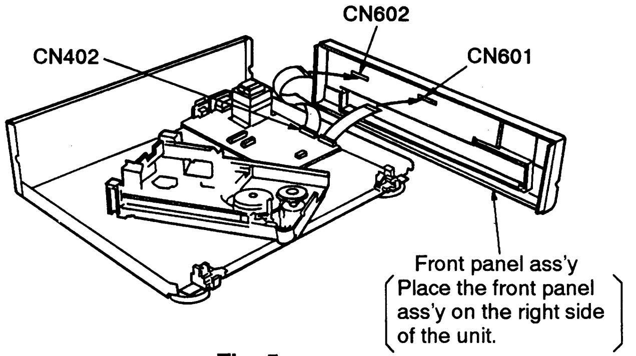

Clamper ass'y
Test disc
FFC
Traverse deck ass'y
Slot
CN301
Mechanism base ass'y

Fig. 6


CN602
CN402
CN601
Front panel ass'y

(Place the front panel ass'y on the right side of the unit.)

Fig. 5

10. Connect the FFC as shown in above.
    (Between CN401 and CN601
    Between CN402 and CN602)

11. Insert the traverse deck in the slot of mechanism base ass'y.
12. Connect the FFC of servo P.C.B. to the connector (CN301) of main P.C.B.
13. Set the test disc on the traverse deck ass'y, and then fix the traverse deck ass'y with clamper ass'y.
14. When checking the soldered surface of servo P.C.B., do as shown in Fig. 7.

**Notes:**

- After completing the check, restore the replaced FFC to their original positions.

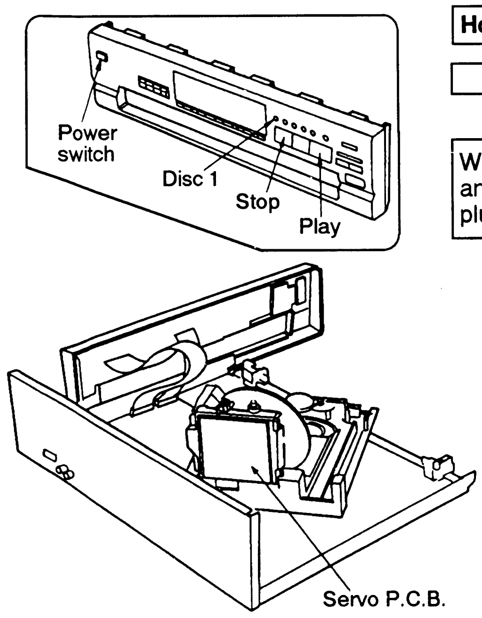
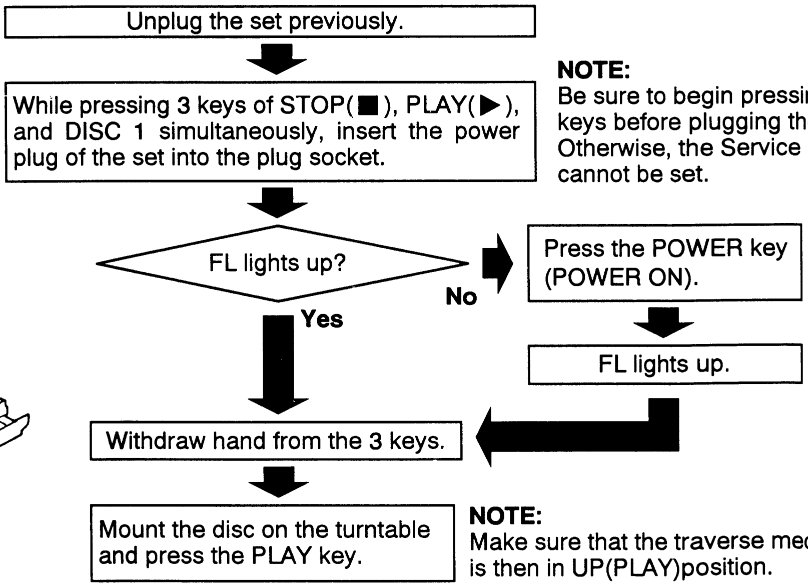

Power switch
Disc 1
Stop
Play
Servo P.C.B.

Fig. 7

**How to play the disc**


Unplug the set previously.
While pressing 3 keys of STOP(■), PLAY(▶), and DISC 1 simultaneously, insert the power plug of the set into the plug socket.
FL lights up?
No
Press the POWER key (POWER ON).
FL lights up.
Yes
Withdraw hand from the 3 keys.
Mount the disc on the turntable and press the PLAY key.

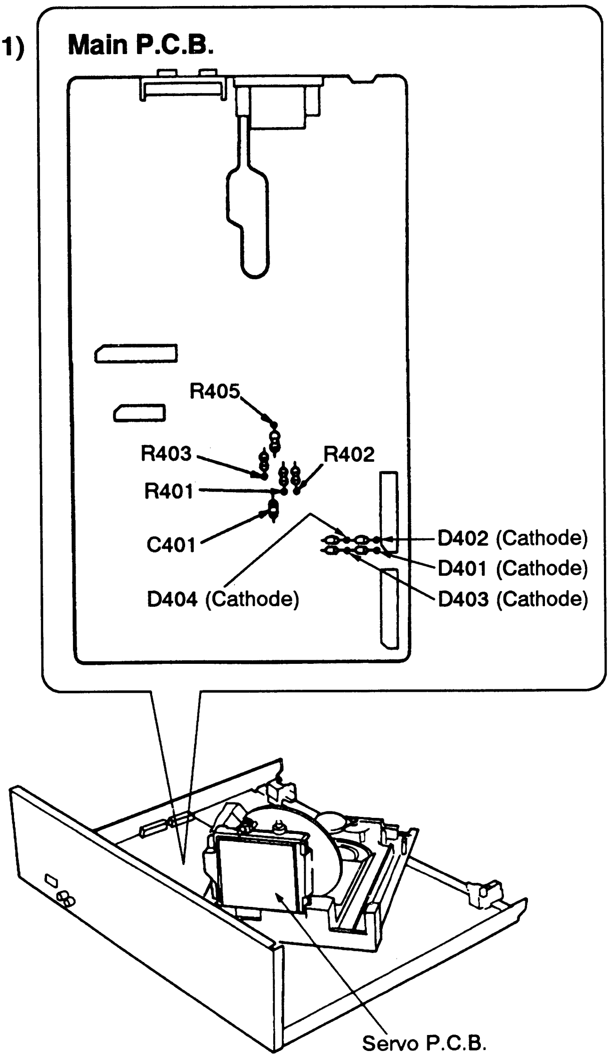
**NOTE:**
Be sure to begin pressing the 3 keys before plugging the set. Otherwise, the Service Mode cannot be set.

**NOTE:**
Make sure that the traverse mechanism is then in UP(PLAY)position.

**Service Mode setting**

When checking the main/servo P.C.B. of this set, remove the rotary tray previously.
After the rotary tray is removed, the microcomputer is kept from issuing PLAY command even when the PLAY key is pressed. Stated above is the procedure of setting the Service Mode for keeping the microcomputer in the PLAY mode even after removal of the rotary tray.

## OPERATING THE UNIT WITHOUT THE FRONT PANEL ASS'Y
## (OPERATION P.C.B. AND KEYS)



### A Turning off the back-up power to the microprocessor(IC 401)

1. Unplug the AC cord.
2. Short the ends of the C401 jumpers at 10 Ω (5W) resistance for at least 1 second.

### B Turning the power on again

1. Plug the AC cord back in.
2. Short the between the following jumpers simultaneously:
   - The D401 cathode and R401 from IC401 (equivalent to pressing the STOP button).
   - The D401 cathode and R403 from IC401 (equivalent to pressing the PLAY button).
   - The D402 cathode and R401 from IC401 (equivalent to pressing the DISC 1 button).
3. Keeping the above shorts in place, short between the D404 cathode and R405 from IC401 for 1 second to turn on the power to the main unit.
4. Remove the shorts placed in step 2.

### C Using the machine

- To play, short between the D401 cathode and R403 from IC401 (equivalent to pressing the PLAY button).
- To pause, short between the D401 cathode and R402 from IC401 (equivalent to pressing the PAUSE button).
- To stop, short between the D401 cathode and R401 from IC401 (equivalent to pressing the STOP button).
- To move forward, short between the D402 cathode and R402 from IC401 (equivalent to pressing the F.SKIP button).
- To move backward, short between the D402 cathode and R403 from IC401 (equivalent to pressing the R.SKIP button).
- To search in the forward direction, short between the D403 cathode and R402 from IC401 (equivalent to pressing the F.SEARCH button).
- To search in the backward direction, short between the D403 cathode and R403 from IC401 (equivalent to pressing the R.SEARCH button).

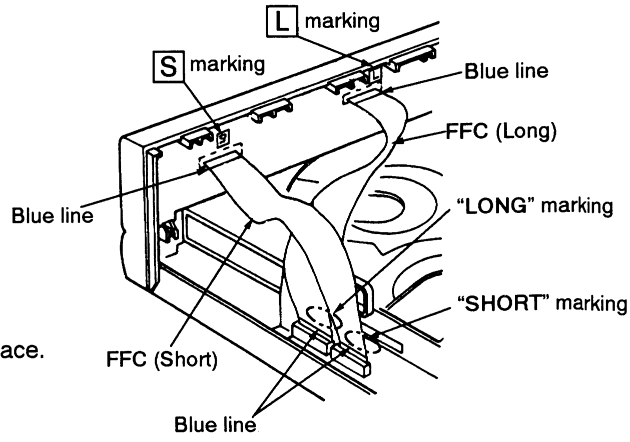
### D Finishing off

1. Unplug the AC cord.
2. Short the ends of the C401 jumpers at 10 Ω (5W) resistance.

## Installation of the FFC

- When connecting the FFC, connect as shown right.
- Connect as follows:

  Short FFC ; between Connector S and SHORT
  Long FFC ; between Connector L and LONG
- Connect the FFC (Long/Short) with blue line upward to the operation P.C.B. connectors .
- Connect the FFC (Long/Short) with blue line outward to the main P.C.B. connectors.



NOTE:
The pin numbers of each connector are marked on the P.C.B. surface.

## ■ AUTOMATIC ADJUSTMENT RESULTS DISPLAY FUNCTION
### (SELF-CHECK FUNCTION)

The unit contains a function which displays the result of the automatically adjustment of the servo circuits (tracking, focus servo, etc.) as an error code on the FL display.
The error code display serves as a repair guide showing the automatically adjustment circuit is at fault. The procedures for displaying the error codes are given below.

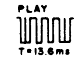
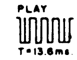
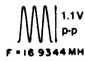
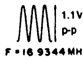
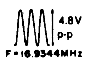
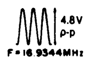
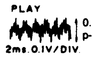
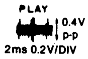
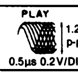
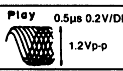
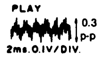
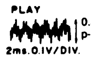
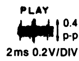
- **Procedures to display the error code**

(1) Procedure to display the error code before disassembly (finished unit)
1. When the POWER key is pressed while holding down the STOP (■), PAUSE (▮▮) and PLAY (▶) keys simultaneously, the FL display illuminates, release the power turns on.
2. When the FL display illuminates, release the STOP (■), PAUSE (▮▮) and PLAY (▶) keys.
3. Press the OPEN/CLOSE (▲) key to open the disc tray and load the test disc (SZZP1054C).
4. Press the PLAY (▶) key to start the play operation.
5. After the time display appears, press the STOP (■) key to display the error code. (e.g. **E-0**)
6. The error code display can be used as a repair guide showing which servo circuit is at fault. (See Error Code Based Troubleshooting.)

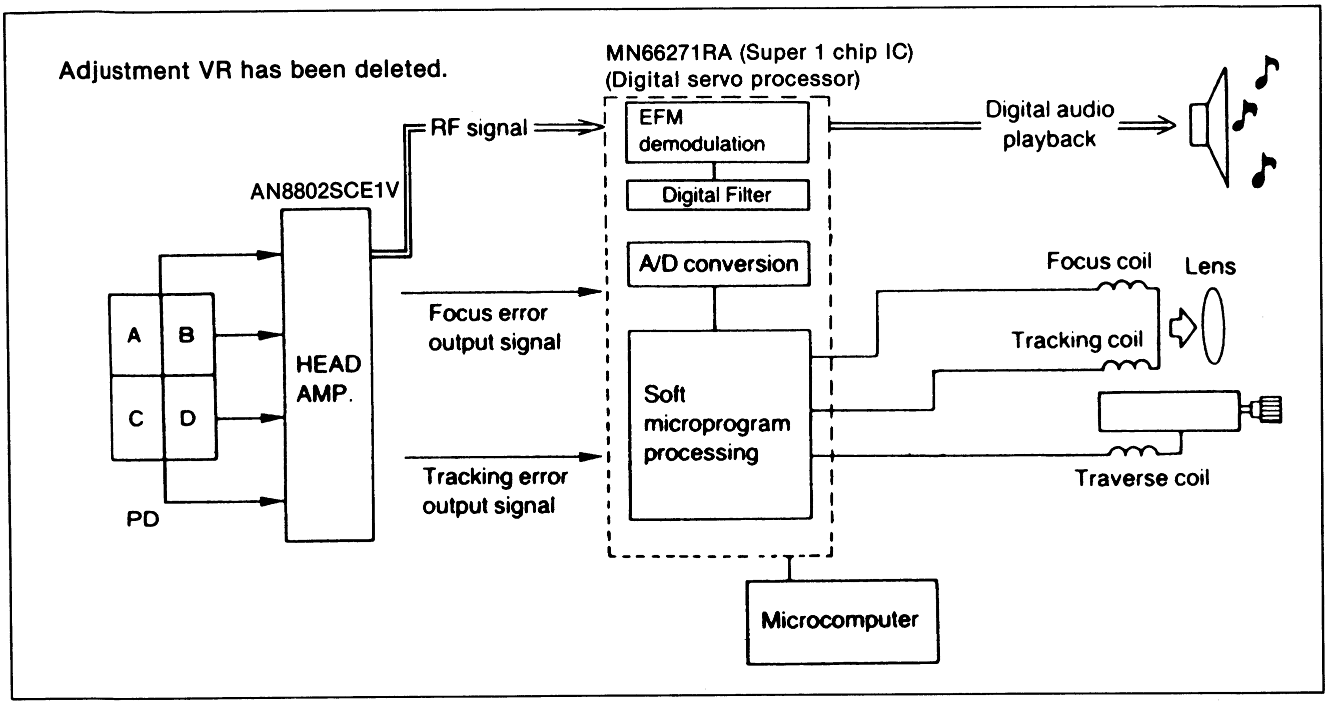
(2) Procedure to display the error code when disassembled
1. Prepare the unit as described in "How to Check the Main and Servo P.C.B." on pages 19, 20.
2. Press the POWER key while holding down the STOP (■), PLAY (▶) and DISC 1 keys simultaneously.
3. When the FL display illuminates, release the STOP (■), PLAY (▶) and DISC 1 keys.
4. Load the test disc (SZZP1054C) on the turntable and secure it with the clamper ass'y.
5. Perform steps 4 and 5 in section (1) above.

- **Error code based troubleshooting**

※ The unit is satisfactory if the error code is **E-0** of **E-2**.
※ Before testing, check that the test disc is free of scratches and dirt and optical pickup is clean.

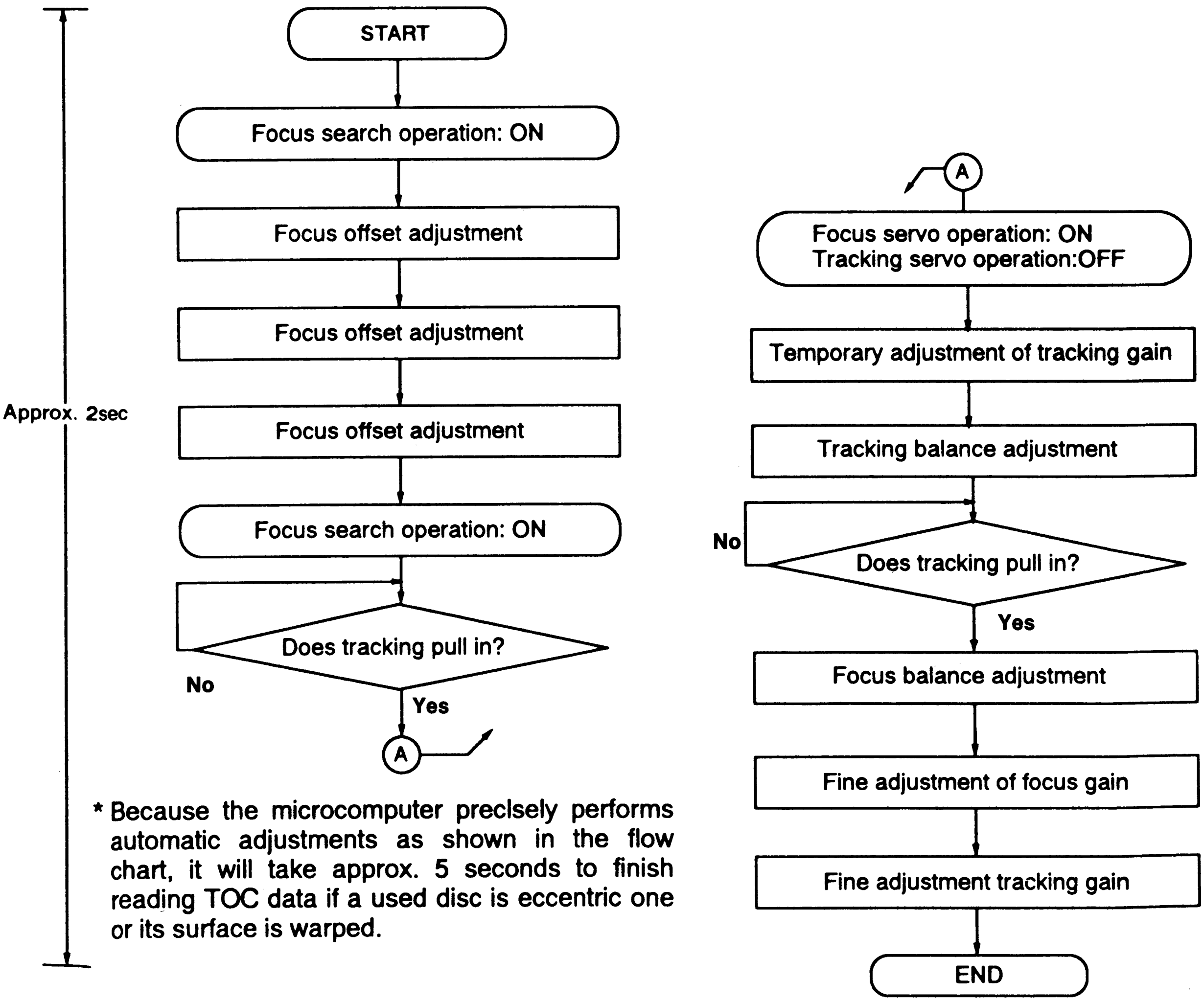
| FL error code display | Symptom | Probable cause | Signal to check | | Normal voltage and waveform values | |
|---|---|---|---|---|---|---|
| | | | Signal name | Location | PLAY | STOP |
| E-1 | Focus and tracking offset adjustments not completed in the specified time period. | ① Clocks X1 and X2, power supply VDD, and reset/RST, all on IC702<br>② MDATA, MCLK, MLD, and SENSE signals to/from mechanism controller | MDATA | IC702 ⑧ pin |  | 4.8V |
| | | | MCLK | IC702 ⑦ pin |  | 4.8V |
| | | | MLD | IC702 ⑨ pin | | |
| | | | SENSE | IC702 ⑩ pin | 0V | 0V |
| | | | /RST | IC702 ⑱ pin | 4.9V | 4.9V |
| | | | X1 | IC702 (58) pin |  |  |
| | | | X2 | IC702 (59) pin |  |  |
| E-3<br>E-5<br>E-7<br>E-9<br>E-B<br>E-D<br>E-F | Disc play unstable | ① Scratches or contaminants on disc surface<br>② Focus and tracking servo circuits (check waveforms, voltages, and part values.)<br>③ Spindle driver circuit<br>④ Optical pickup | FE | IC702 ㉜ pin |  | 2.4V |
| | | | TE | IC702 ㉝ pin |  | 2.4V |
| | | | FOD | IC702 ㉘ pin | 2.4V | 2.4V |
| | | | TRD | IC702 ㉗ pin | 2.4V | 2.4V |
| | | | KICK | IC702 ㉖ pin | 2.4V | 2.4V |
| | | | /FLOCK | IC702 ⑪ pin | 0V | 4.9V |
| | | | /RF DET | IC702 ㊳ pin | 0V | 4.8V |
| | | | RF | TJ701 |  | 3.4V |
| | | | STAT | IC702 ⑰ pin | 3.5V | 0V |
| E-4<br>E-6<br>E-C<br>E-E | Best Eye (PD Balance) adjustment not completed in the specified time period. | ① Scratches or contaminants on disc surface<br>② Focus and Tracking servo circuit (check waveforms, voltages, and part values.)<br>③ Optical pickup | FBAL | IC702 ㉚ pin | 2.5 ± 1.25V | 2.5 ± 1.25V |
| | | | RF | TJ701 |  | 3.4V |
| | | | FE | IC702 ㉜ pin |  | 0V |
| | | | /TLOCK | IC702 ⑫ pin | 0V | 0V |
| | | | OFT | IC702 ㊱ pin | 0V | 0V |
| E-8<br>E-A | Focus or Tracking gain adjustment not completed in the specified time period. | ① Scratches or contaminants on disc surface<br>② Focus and Tracking servo circuit (check waveforms, voltages, and part values.)<br>③ Optical pickup | FE | IC702 ㉜ pin |  | 2.4V |
| | | | TE | IC702 ㉝ pin |  | 2.4V |
| | | | /TLOCK | IC702 ⑫ pin | 0V | 0V |
| | | | OFT | IC702 ㊱ pin | 0V | 0V |

# DIGITAL SERVO SYSTEM


Adjustment VR has been deleted.
MN66271RA (Super 1 chip IC)
(Digital servo processor)
RF signal
AN8802SCE1V
EFM demodulation
Digital Filter
A/D conversion
Soft microprogram processing
Digital audio playback
Focus coil
Lens
Tracking coil
Traverse coil
Focus error output signal
Tracking error output signal
HEAD AMP.
A
B
C
D
PD
Microcomputer

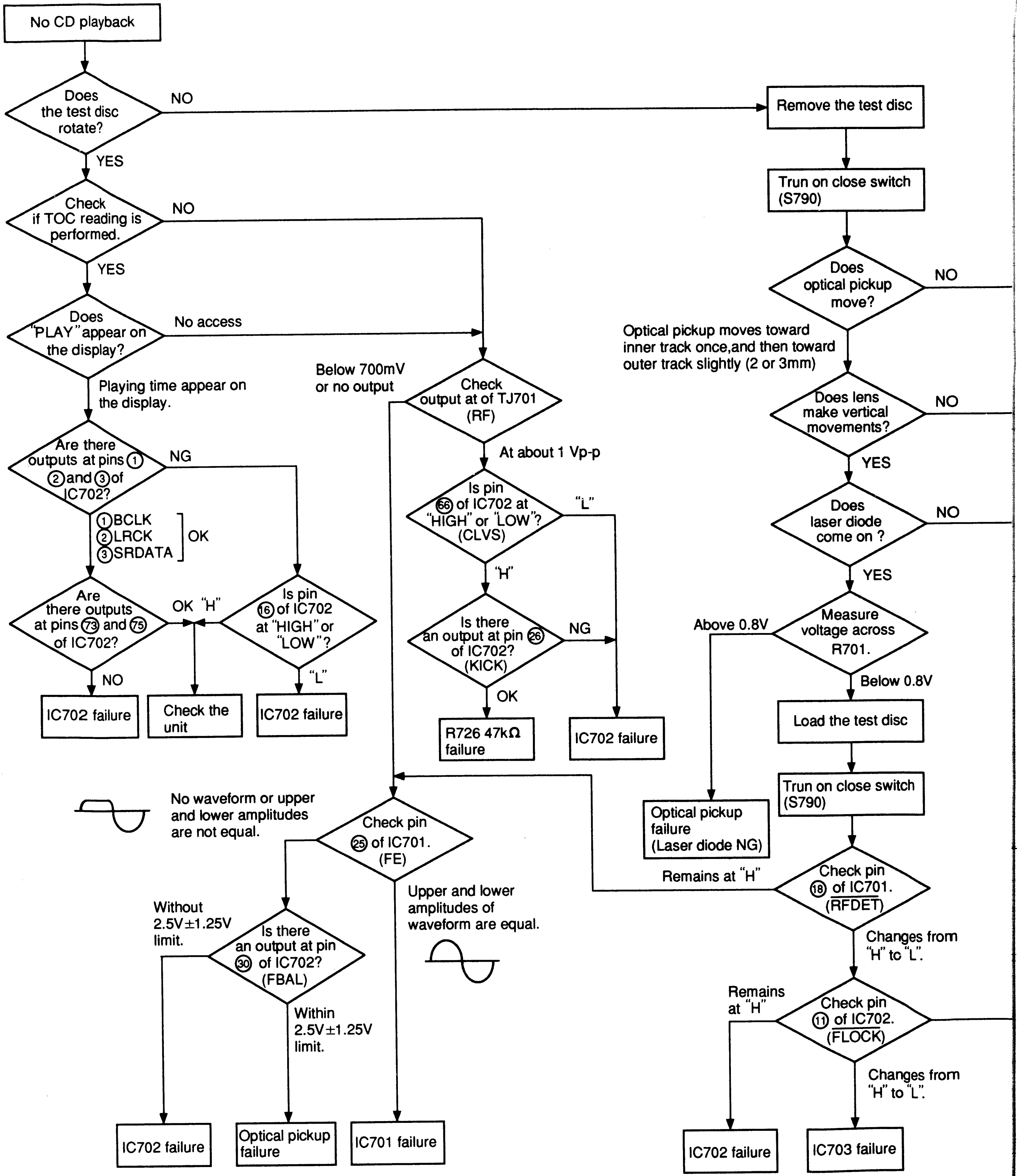
The following flow chart shows the sequence of automatic adjustments.

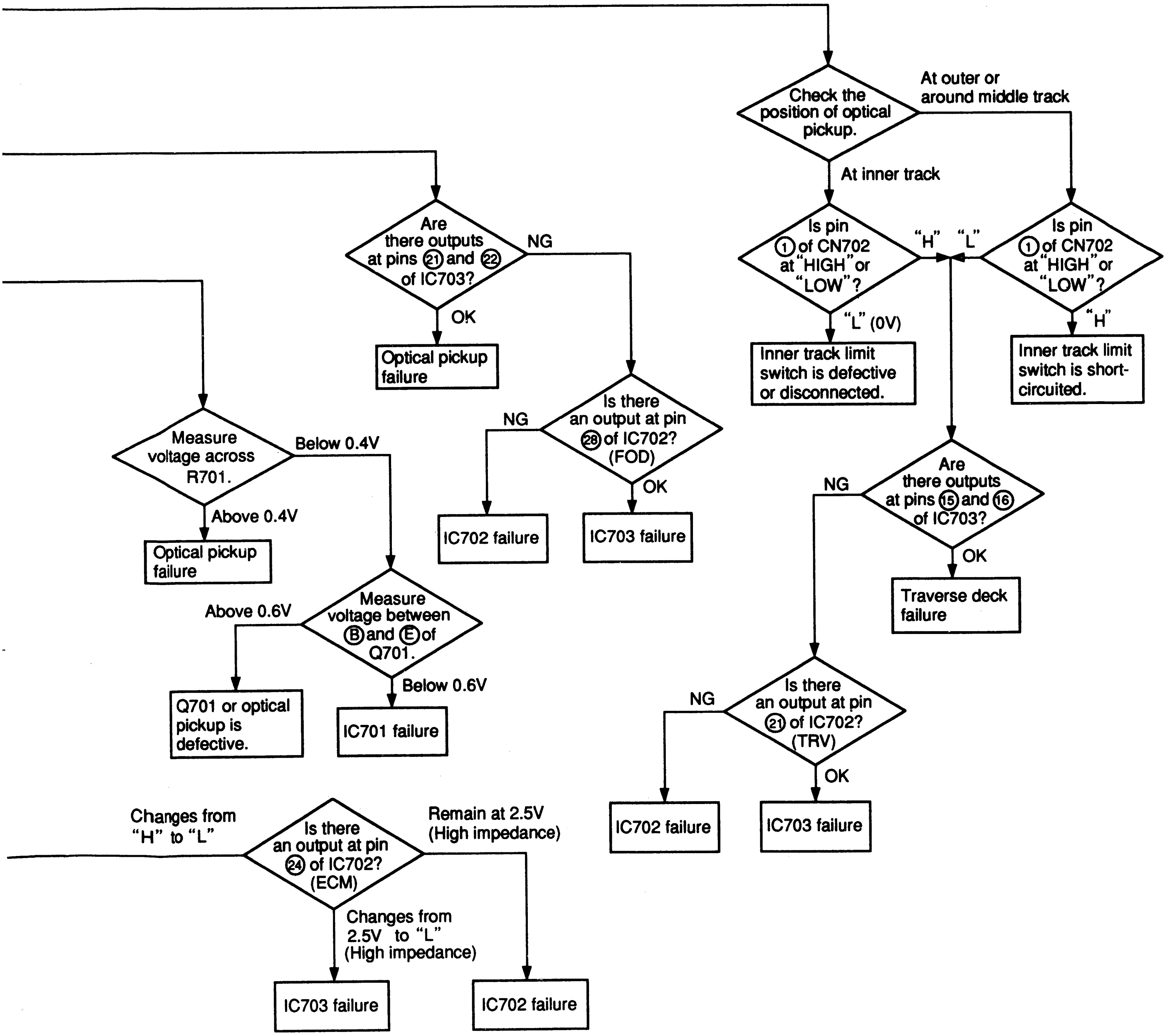
- **Flow chart automatic adjustment sequence**


START
Focus search operation: ON
Focus offset adjustment
Focus offset adjustment
Focus offset adjustment
Focus search operation: ON
Does tracking pull in?
No
Yes
A
Approx. 2sec
A
Focus servo operation: ON
Tracking servo operation:OFF
Temporary adjustment of tracking gain
Tracking balance adjustment
No
Does tracking pull in?
Yes
Focus balance adjustment
Fine adjustment of focus gain
Fine adjustment tracking gain
END

* Because the microcomputer preclsely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric one or its surface is warped.

# ■TROUBLESHOOTING


No CD playback
Does the test disc rotate?
NO
YES
Remove the test disc
Trun on close switch (S790)
Does optical pickup move?
NO
Optical pickup moves toward inner track once,and then toward outer track slightly (2 or 3mm)
Does lens make vertical movements?
NO
YES
Does laser diode come on ?
NO
YES
Above 0.8V
Measure voltage across R701.
Below 0.8V
Load the test disc
Trun on close switch (S790)
Optical pickup failure (Laser diode NG)
Remains at "H"
Check pin ⑱ of IC701. (RFDET)
Changes from "H" to "L".
Remains at "H"
Check pin ⑪ of IC702. (FLOCK)
Changes from "H" to "L".
IC702 failure
IC703 failure
Check if TOC reading is performed.
NO
YES
Does "PLAY" appear on the display?
No access
Playing time appear on the display.
Below 700mV or no output
Check output at of TJ701 (RF)
At about 1 Vp-p
Is pin ⑯ of IC702 at "HIGH" or "LOW"? (CLVS)
"L"
"H"
Is there an output at pin ㉖ of IC702? (KICK)
NG
OK
R726 47kΩ failure
IC702 failure
Are there outputs at pins ① ② and ③ of IC702?
NG
①BCLK
②LRCK
③SRDATA
OK
Are there outputs at pins ㉝ and ㉟ of IC702?
OK "H"
Is pin ⑯ of IC702 at "HIGH" or "LOW"?
NO
"L"
IC702 failure
Check the unit
IC702 failure
No waveform or upper and lower amplitudes are not equal.
Check pin ㉕ of IC701. (FE)
Upper and lower amplitudes of waveform are equal.
Without 2.5V±1.25V limit.
Is there an output at pin ㉚ of IC702? (FBAL)
Within 2.5V±1.25V limit.
IC702 failure
Optical pickup failure
IC701 failure


Check the position of optical pickup.
At outer or around middle track
At inner track
Is pin ① of CN702 at "HIGH" or "LOW"?
"H"
"L"
Is pin ① of CN702 at "HIGH" or "LOW"?
"L" (0V)
"H"
Inner track limit switch is defective or disconnected.
Inner track limit switch is short-circuited.
Are there outputs at pins ㉑ and ㉒ of IC703?
NG
OK
Optical pickup failure
Is there an output at pin ㉘ of IC702? (FOD)
NG
OK
IC702 failure
IC703 failure
Are there outputs at pins ⑮ and ⑯ of IC703?
NG
OK
Traverse deck failure
Measure voltage across R701.
Below 0.4V
Above 0.4V
Optical pickup failure
Measure voltage between Ⓑ and Ⓔ of Q701.
Above 0.6V
Below 0.6V
Q701 or optical pickup is defective.
IC701 failure
Is there an output at pin ㉑ of IC702? (TRV)
NG
OK
IC702 failure
IC703 failure
Changes from "H" to "L"
Is there an output at pin ㉔ of IC702? (ECM)
Remain at 2.5V (High impedance)
Changes from 2.5V to "L" (High impedance)
IC703 failure
IC702 failure

# MEASUREMENTS AND ADJUSTMENTS

**Warning:** This product uses a laser diode. Refer to caution statements on page 2.

**ACHTUNG:**
- Die lasereinheit nicht zerlegen.
- Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

## Measuring Instruments and Special Tools

∗ Test discs
1. Playability test disc (SZZP1054C)
2. Uneven test disc (SZZP1056C)

∗ Musical program disc (ordinary)

∗ Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT. trigger and 1:1 probe).

∗ Allen wrench (M2.0) (SZZP1101C)

∗ Lock paint (RZZ0L01)

## PREPARATION

1. Remove the cabinet and front panel ass'y (refer to "disassembly instructions" Ref. No. 1, 2).
2. Set the power switch to ON and press the open/close key to close the loading drawer.
3. Press the play key and when the traverse deck reaches it's height position, set the power switch to OFF.
4. Remove the tray ass'y (refer to "disassembly instructions" Ref. No. 5).
5. Remove the clamp plate, fixed plate, magnet and clamper (refer to "disassembly instructions" Ref. No. 10, 11).
6. Place the test disc and secure it by using clamper ass'y. (Refer to Fig. 1)
   (refer to "disassembly instructions" Ref. No. 11).
7. Set the unit in the test mode as follows:
   (hold the **play**, **stop** and **disc 1** keys (3 keys) on and set the power switch to ON.)
8. Press the **play** key and play the test disc.
9. Follow the adjustment procedure.

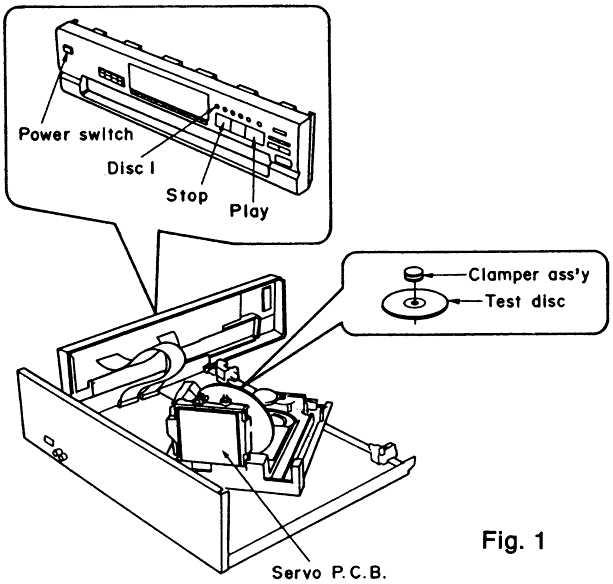
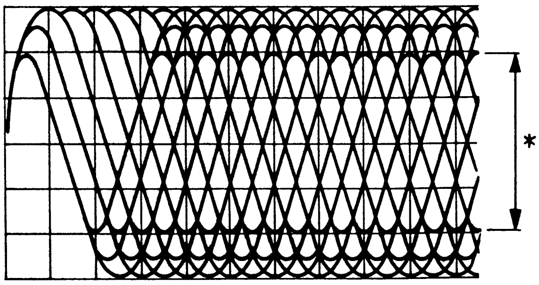


Fig. 1

### (1) MECHANICAL ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across **TJ701** (RF) and **TJ702** (VREF) on the servo P.C.B. (Refer to Fig. 3 on page 27)
   **Oscilloscope setting:** VOLT ..................... 200mV
   SWEEP.................. 0.5µs.
   Input coupling...... AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
   (Playing any other track will prevent the HEX screws from being accessed.)
3. Leave the player in play mode and place it as shown Fig. 3.
4. Alternately adjust the two HEX screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched. (Refer to Fig. 2)
5. After completing the adjustment, lock the HEX screws with lock paint (RZZ0L01).



∗Most stretched eye pattern.

Fig. 2

### (2) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

∗ **Checking Skip Search**

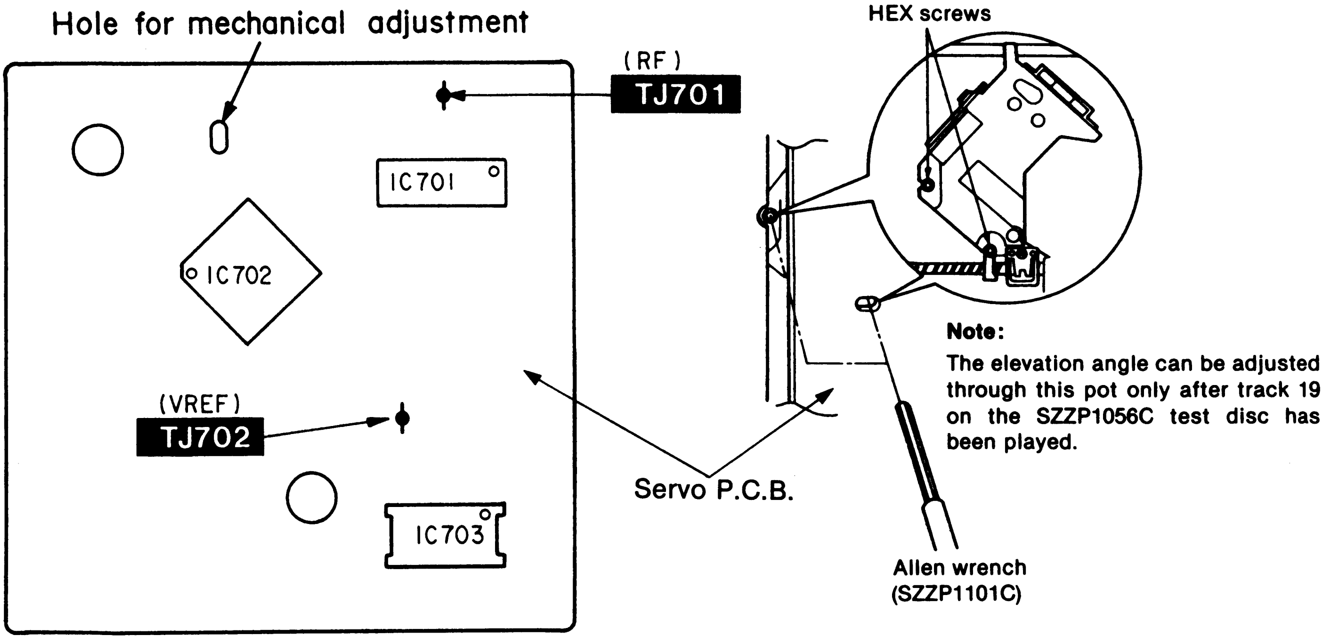
1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

∗ **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

∗ **Checking Playability**

1. Play the 0.7mm black dot and the 0.7mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.


Hole for mechanical adjustment
(RF)
TJ701
IC701
IC702
(VREF)
TJ702
IC703
Servo P.C.B.
HEX screws
Allen wrench
(SZZP1101C)

**Note:**
The elevation angle can be adjusted through this pot only after track 19 on the SZZP1056C test disc has been played.

Fig. 3

# TERMINAL GUIDE

## • IC701 (AN8802SCE1V): Servo amp

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | PDAD | I | Photo detector Bch input without delay |
| 2 | PDA | I | Photo detector Ach input without delay |
| 3 | LPD | I | Laser PD signal |
| 4 | LD | O | Laser power auto control output |
| 5 | AMPI | I | RF amp terminal |
| 6 | $V_{CC}$ | I | Power supply terminal |
| 7 | AMPO | O | RF amp signal |
| 8 | CAGC | I | AGC detection capacitor input |
| 9 | ARF | O | RF signal |
| 10 | CENV | I | RF detect capacitor connection terminal |
| 11 | CEA | I | HPF-AMP capacitor connection terminal |
| 12 | GND | — | GND terminal |
| 13 | LDON | I | LD APC ON/OFF ("H": ON, "L": OFF) |
| 14 | TES | I | Tracking error shunt input ("H": shunt) |
| 15 | PLAY | I | Play signal ("H": ON, "L": OFF) |
| 16 | WVEL | I | Double velocity ("H": double, "L": single) |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 17 | BDO | O | Dropout detection control |
| 18 | /RFDET | O | RF det. signal ("L": det.) |
| 19 | CROSS | O | Tracking error zero cross output |
| 20 | OFTR | O | Off track detection ("H": det.) |
| 21 | VDET | O | Oscillation det. signal ("H": det.) |
| 22 | ENV | O | Envelope output terminal |
| 23 | TEBPF | I | Oscillation detect input terminal (Not used, open) |
| 24 | TE | O | Tracking error signal |
| 25 | FE | O | Focusing error signal |
| 26 | PTO | O | Potention amp output |
| 27 | PTI | I | Potention amp input |
| 28 | TBAL | I | Tracking balance adj. input |
| 29 | FBAL | I | Focus balance adj. input |
| 30 | VREF | O | Reference voltage output |
| 31 | PDB | I | Photo detector Ach input with delay |
| 32 | PDBD | I | Photo detector Bch input with delay |

## • IC703 (AN8389SE1): Focus coil/tracking coil/traverse motor/spindle motor drive

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | $V_{CC}$ | I | Power supply terminal |
| 2 | VREF | I | Reference voltage input |
| 3 | IN4 | I | Motor driver (4) input |
| 4 | IN3 | I | Motor driver (3) input |
| 5 | GND | — | GND terminal |
| 6 | NC | — | Not used, connected to GND |
| 7 | NRESET | O | Reset terminal |
| 8 | GND | — | GND terminal |
| 9 | IN2 | I | Motor driver (2) input |
| 10 | PC2 | I | PC2 (power cut) input |
| 11 | IN1 | I | Motor driver (1) input |
| 12 | PC1 | I | PC1 (power cut) input (Not used, open) |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 13 | $PV_{CC}1$ | I | Driver power supply (1) |
| 14 | PGND1 | — | Driver GND terminal (1) |
| 15 | D1− | O | Motor driver (1) output terminal (−) |
| 16 | D1+ | O | Motor driver (1) output terminal (+) |
| 17 | D2− | O | Motor driver (2) output terminal (−) |
| 18 | D2+ | O | Motor driver (2) output terminal (+) |
| 19 | D3− | O | Motor driver (3) output terminal (−) |
| 20 | D3+ | O | Motor driver (3) output terminal (+) |
| 21 | D4− | O | Motor driver (4) output terminal (−) |
| 22 | D4+ | O | Motor driver (4) output terminal (+) |
| 23 | PGND2 | — | Driver GND terminal (2) |
| 24 | $PV_{CC}2$ | I | Driver power supply (2) |

- **IC702 (MN66271RA): Servo processor/Digital signal processor/Digital filter/D/A converter**

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1 | BCLK | O | Serial bit clock terminal |
| 2 | LRCK | O | L/R discriminating signal |
| 3 | SRDATA | O | Serial data (Not used, open) |
| 4 | $DV_{DD}1$ | I | Power supply (digital circuit) terminal |
| 5 | $DV_{SS}1$ | — | GND (digital circuit) terminal |
| 6 | TX | O | Digital audio interface signal |
| 7 | MCLK | I | Command clock signal |
| 8 | MDATA | I | Command data signal |
| 9 | MLD | I | Command load signal ("L": LOAD) |
| 10 | SENSE | O | Sense signal (OFT, FESL, NACEND, NAJEND, POSAD, SFG) |
| 11 | /FLOCK | O | Optical servo condition (focus) ("L": lead-in) |
| 12 | /TLOCK | O | Optical servo condition (tracking) ("L": lead-in) |
| 13 | BLKCK | O | Sub-code block clock (f=75Hz) (Not used, open) |
| 14 | SQCK | I | Sub-code Q register clock |
| 15 | SUBQ | O | Sub-code Q data |
| 16 | DMUTE | I | Muting input ("H": MUTE) (Not used, connected to GND) |
| 17 | STAT | O | Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQCK) |
| 18 | /RST | I | Reset signal ("L": reset) |
| 19 | SMCK | O | System clock (f=4.2336MHz) (Not used, open) |
| 20 | PMCK | O | Frequency division clock signal (Not used, open) $(f=\frac{1}{1.92}\times ck=88.2kHz)$ |
| 21 | TRV | O | Traverse servo control |
| 22 | TVD | O | Traverse drive signal |
| 23 | PC | O | Turntable motor drive signal ("L": ON) |
| 24 | ECM | O | Turntable motor drive signal (Forced mode) |
| 25 | ECS | O | Turntable motor drive signal (Servo error signal) |
| 26 | KICK | O | Kick pulse output |
| 27 | TRD | O | Tracking drive signal output |
| 28 | FOD | O | Focus drive signal output |
| 29 | VREF | I | D/A drive output (TVD, ECS, TRD, FOD, FBAL, TBAL) normal voltage input terminal |
| 30 | FBAL | O | Focus balance adj. output (Not used, open) |
| 31 | TBAL | O | Tracking balance adj. output |
| 32 | FE | I | Focus error signal (analog input) |
| 33 | TE | I | Tracking error signal (analog input) |
| 34 | RFENV | I | RF envelope signal |
| 35 | VDET | I | Oscillation det. signal ("H": det.) |
| 36 | OFT | I | Off frack signal ("H": Off track) |
| 37 | TRCRS | I | Track cross signal input |
| 38 | /RFDET | I | RF detection signal ("L": detection) |
| 39 | BDO | I | Dropout detection signal ("H": dropout) |
| 40 | LDON | O | Laser power control ("H": ON) |
| 41 | TES | O | Tracking error shunt output ("H": dropout) |
| 42 | PLAY | O | Play signal ("H": play) |

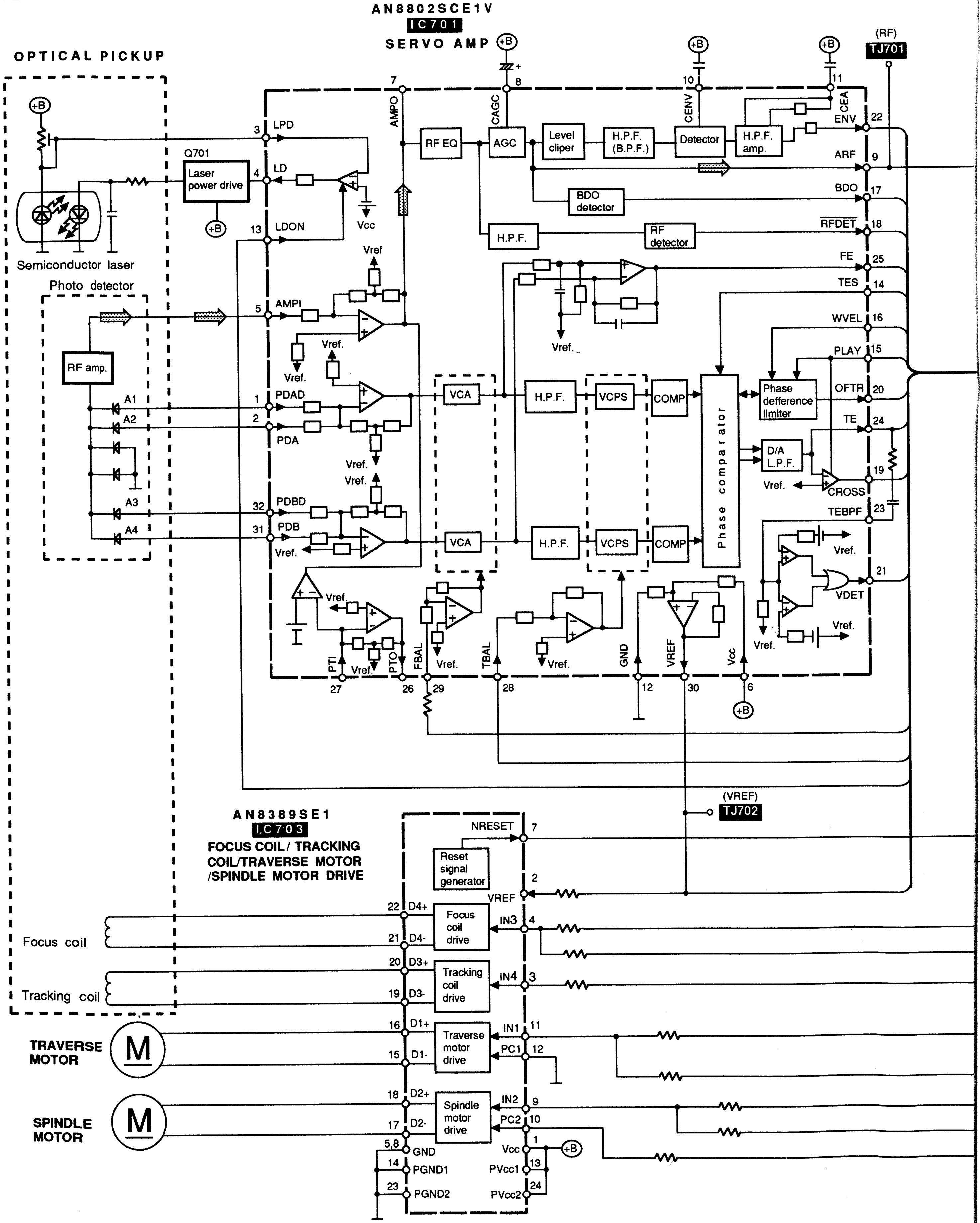
| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 43 | WVEL | O | Double velocity status signal ("H": double) |
| 44 | ARF | I | RF signal input |
| 45 | IREF | I | Reference current input |
| 46 | DRF | I | DSL bias terminal (Not used, open) |
| 47 | DSLF | I/O | DSL loop filter terminal |
| 48 | PLLF | I/O | PLL loop filter terminal |
| 49 | VCOF | I/O | VCO loop filter terminal (Not used, open) |
| 50 | $AV_{DD}2$ | I | Power supply (analog circuit) terminal (2) |
| 51 | $AV_{SS}2$ | — | GND (analog circuit) terminal |
| 52 | EFM | O | EFM signal (Not used, open) |
| 53 | PCK | O | PLL extract clock (f=4.3218MHz) |
| 54 | PDO | O | Phase comparated signal of EFM and PCK (Not used, open) |
| 55 | SUBC | O | Sub-code serial output data (Not used, open) |
| 56 | SBCK | I | Sub-code serial input clock (Not used, connected to GND) |
| 57 | $V_{SS}$ | — | GND terminal |
| 58 | X1 | I | Crystal oscillator terminal (f=16.9344MHz) |
| 59 | X2 | O | |
| 60 | $V_{DD}$ | I | Power supply terminal |
| 61 | BYTCK | O | Byte clock signal (Not used, open) |
| 62 | /CLDCK | O | Sub-code frame clock signal (f CLDCK=7.35kHz: Normal) (Not used, open) |

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 63 | FCLK | O | Crystal frame clock (Not used, open) |
| 64 | IPFLAG | O | Interpolation flag terminal |
| 65 | FLAG | O | Flag terminal |
| 66 | CLVS | O | Turntable servo phase synch. signal ("H": CLV, "L": Rough servo) (Not used, open) |
| 67 | CRC | O | Sub-code CRC check terminal ("H": OK, "L": NG) |
| 68 | DEMPH | O | De-emphasis ON signal ("H": ON) (Not used, open) |
| 69 | RESY | O | Re-synchronizing signal of frame sync. (Not used, open) |
| 70 | /RST2 | I | Reset terminal after "MASH" circuit |
| 71 | /TEST | I | Test terminal (Normal: "H") |
| 72 | $AV_{DD}1$ | I | Power supply (analog circuit) terminal (1) |
| 73 | OUTL | O | Lch audio signal |
| 74 | $AV_{SS}1$ | — | GND (analog circuit) terminal (1) |
| 75 | OUTR | O | Rch audio signal |
| 76 | RSEL | I | Polarity direction control terminal of RF signal |
| 77 | CSEL | I | Frequency control terminal of crystal oscillator (Not used, connected to GND) |
| 78 | PSEL | I | Test terminal (Normal: "L") |
| 79 | MSEL | I | "SMCK" terminal frequency select ("L": SMCK=4.2336MHz) |
| 80 | SSEL | I | "SUBQ" terminal mode select ("H": Q code buffer) |

## • IC401 (UPD78044A058): System control & FL drive

| Pin No. | Mark | I/O Division | Function |
|---|---|---|---|
| 1<br>≀<br>7 | G7<br>≀<br>G1 | O | Grid signal of FL display |
| 8 | VDD | I | Power supply terminal |
| 9 | MCLK | O | Command clock signal |
| 10 | MDATA | O | Command data signal |
| 11 | MLD | O | Command load signal ("L" LOAD) |
| 12 | SENSE | I | Sense signal |
| 13 | DMUTE | O | Muting control signal |
| 14 | SQCK | O | Sub-code Q register clock |
| 15 | NC | — | Not connected |
| 16 | SUBQ | I | Sub-code Q data |
| 17 | /RESET | I | Reset signal input |
| 18 | ZSENSE | — | Not used, connected to GND |
| 19 | REC. EN | I | Synchro. rec. control terminal |
| 20 | AVSS | — | GND terminal |
| 21 | /RSTSV | O | Reset signal output |
| 22 | OPEN | I | Open detect terminal |
| 23 | DIR | O | Motor control signal |
| 24 | TRUN | O | |
| 25 | LOAD | O | Motor control signal |
| 26 | DAC | O | Not used, open |
| 27 | RESTSW | I | Rest position de |
| 28 | UP/DOWN | I | Traverse deck up/down det. terminal |
| 29 | AVDD | I | Power supply terminal |
| 30 | AVREF | I | Power supply terminal |
| 31 | XT1 | — | Not used, connected to GND |
| 32 | XT2 | — | Not used, open |
| 33 | VSS | — | GND terminal |
| 34 | X1 | I | Crystal Osc terminal (F: 4.2336 MHz) |
| 35 | X2 | O | |
| 36<br>≀<br>42 | KEYIN 7<br>≀<br>KEYIN 1 | I | Key return signal |
| 43 | PWM | O | Motor control signal |
| 44 | POFF | I | Power det. terminal |
| 45 | POSITION | I | Rotary tray position det. terminal |
| 46 | SPEED | I | Loading motor speed sensor signal |
| 47 | REMOCON | I | Remote control signal input |
| 48 | IC | — | Not used, connected to GND |
| 49 | /TLOCK | I | Optical servo condition (tracking) input |
| 50 | /FLOCK | I | Optical servo condition (focus) input |
| 51 | STAT | I | Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQCK) |
| 52 | VDD | I | Power supply terminal |
| 53 | POWER | O | Power ON/OFF output terminal |
| 54 | SYNCHRO | — | Not used, open |
| 55<br>≀<br>60 | KEYOUT 6<br>≀<br>KEYOUT 1 | O | Key scan signal |
| 61<br>≀<br>70 | S16<br>≀<br>S7 | O | Segment signal of FL display |
| 71 | VPP | I | Power supply terminal |
| 72<br>≀<br>77 | S6<br>≀<br>S1 | O | Segment signal of FL display |
| 78 | EXDATA | O | Not used, open |
| 79 | EXCLK | O | Not used, open |
| 80 | G8 | O | Grid signal of FL display |

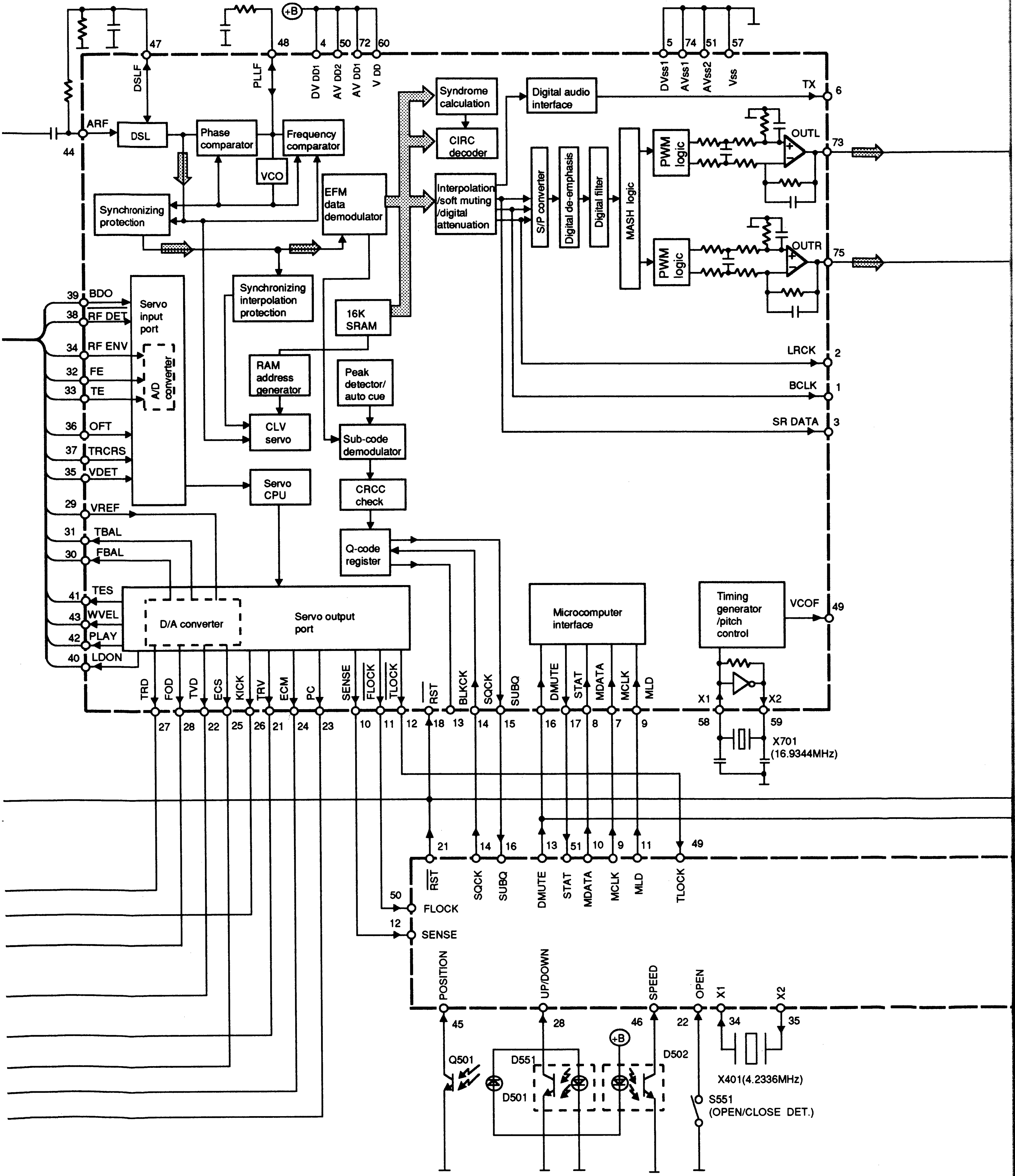
# ■BLOCK DIAGRAM

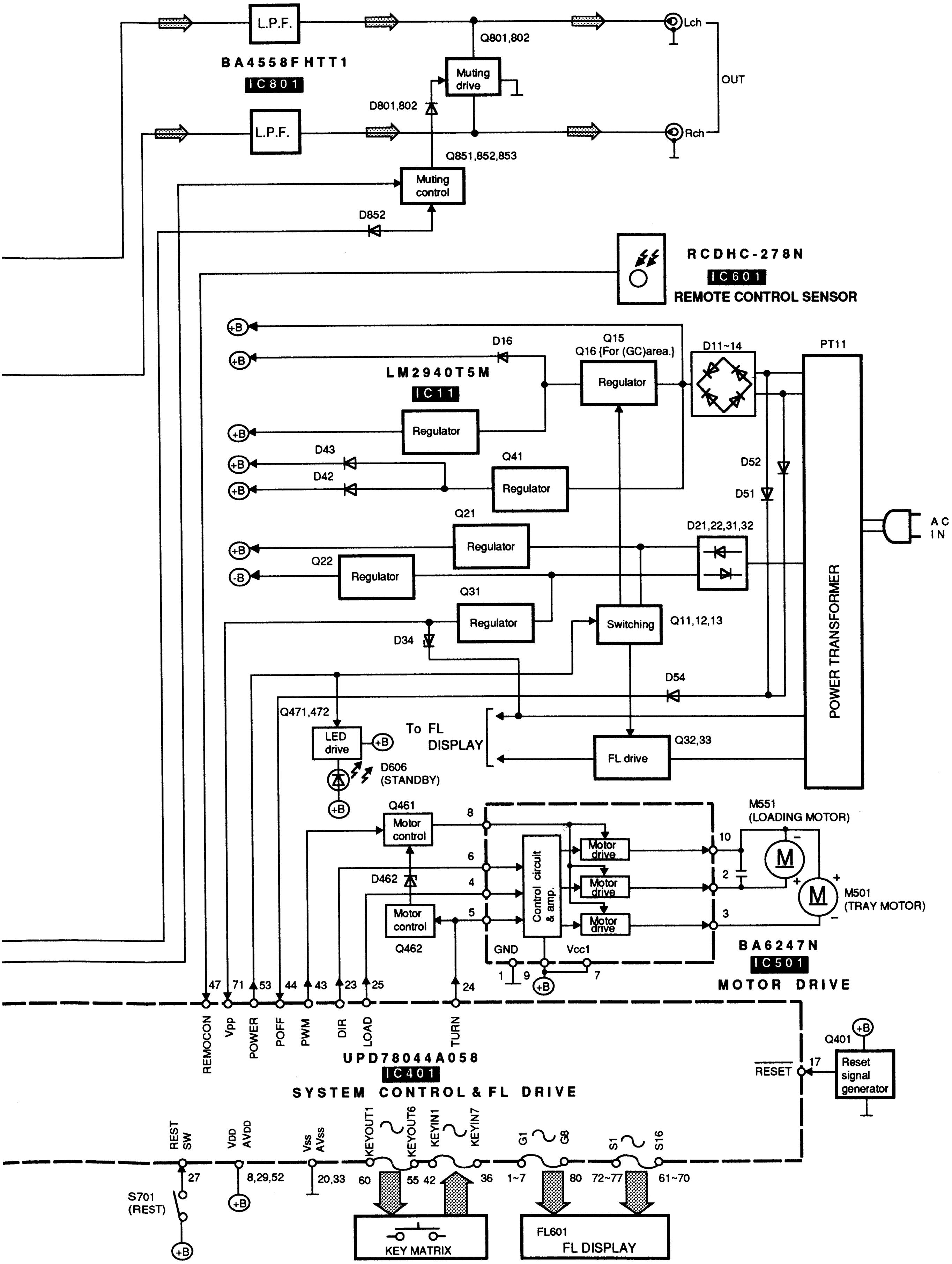

AN8802SCE1V
IC701
SERVO AMP
OPTICAL PICKUP
Semiconductor laser
Photo detector
RF amp.
A1
A2
A3
A4
Q701
Laser power drive
LPD
LD
LDON
AMPI
PDAD
PDA
PDBD
PDB
AMPO
CAGC
CENV
CEA
RF EQ
AGC
Level cliper
H.P.F. (B.P.F.)
Detector
H.P.F. amp.
ENV
ARF
BDO detector
BDO
H.P.F.
RF detector
RFDET
FE
TES
WVEL
PLAY
VCA
VCPS
COMP
Phase comparator
Phase defference limiter
OFTR
TE
D/A L.P.F.
CROSS
TEBPF
VDET
PTI
PTO
FBAL
TBAL
GND
VREF
Vcc
Vref.
(RF)
TJ701
(VREF)
TJ702
AN8389SE1
IC703
FOCUS COIL/ TRACKING COIL/TRAVERSE MOTOR /SPINDLE MOTOR DRIVE
NRESET
Reset signal generator
VREF
Focus coil drive
Tracking coil drive
Traverse motor drive
Spindle motor drive
D4+
D4-
D3+
D3-
D1+
D1-
D2+
D2-
IN3
IN4
IN1
PC1
IN2
PC2
GND
PGND1
PGND2
Vcc
PVcc1
PVcc2
Focus coil
Tracking coil
TRAVERSE MOTOR
SPINDLE MOTOR
M
+B

**MN66271RA**

**IC702**

## SERVO PROCESSOR / DIGITAL SIGNAL PROCESSOR / DIGITAL FILTER / D/A CONVERTER


+B
47
48
4
50
72
60
5
74
51
57
DSLF
PLLF
DV DD1
AV DD2
AV DD1
V DD
DVss1
AVss1
AVss2
Vss
ARF
44
DSL
Phase comparator
VCO
Frequency comparator
Synchronizing protection
EFM data demodulator
Syndrome calculation
CIRC decoder
Interpolation /soft muting /digital attenuation
Digital audio interface
TX
6
S/P converter
Digital de-emphasis
Digital filter
MASH logic
PWM logic
OUTL
73
OUTR
75
Synchronizing interpolation protection
16K SRAM
RAM address generator
Peak detector/ auto cue
CLV servo
Sub-code demodulator
CRCC check
Q-code register
Servo CPU
Servo input port
A/D converter
39 BDO
38 RF DET
34 RF ENV
32 FE
33 TE
36 OFT
37 TRCRS
35 VDET
29 VREF
31 TBAL
30 FBAL
41 TES
43 WVEL
42 PLAY
40 LDON
D/A converter
Servo output port
LRCK 2
BCLK 1
SR DATA 3
Microcomputer interface
Timing generator /pitch control
VCOF 49
TRD
FOD
TVD
ECS
KICK
TRV
ECM
PC
SENSE
FLOCK
TLOCK
RST
BLKCK
SQCK
SUBQ
DMUTE
STAT
MDATA
MCLK
MLD
X1
X2
27
28
22
25
26
21
24
23
10
11
12
18
13
14
15
16
17
8
7
9
58
59
X701 (16.9344MHz)
21
14
16
13
51
10
9
11
49
RST
SQCK
SUBQ
DMUTE
STAT
MDATA
MCLK
MLD
TLOCK
50 FLOCK
12 SENSE
POSITION
UP/DOWN
SPEED
OPEN
X1
X2
45
28
46
22
34
35
Q501
D551
D501
+B
D502
X401(4.2336MHz)
S551 (OPEN/CLOSE DET.)


L.P.F.
L.P.F.
BA4558FHTT1
IC801
Q801,802
Muting drive
D801,802
Q851,852,853
Muting control
D852
Lch
Rch
OUT
RCDHC-278N
IC601
REMOTE CONTROL SENSOR
+B
-B
D16
Q15
Q16 {For (GC)area.}
Regulator
D11~14
PT11
LM2940T5M
IC11
D43
D42
Q41
Q21
Q22
Q31
D52
D51
D21,22,31,32
AC IN
POWER TRANSFORMER
Switching
Q11,12,13
D34
D54
Q471,472
LED drive
To FL DISPLAY
D606 (STANDBY)
FL drive
Q32,33
Q461
Motor control
D462
Q462
Control circuit & amp.
Motor drive
GND
Vcc1
M551 (LOADING MOTOR)
M501 (TRAY MOTOR)
M
BA6247N
IC501
MOTOR DRIVE
8
6
4
5
10
2
3
1
9
7
47
71
53
44
43
23
25
24
REMOCON
Vpp
POWER
POFF
PWM
DIR
LOAD
TURN
UPD78044A058
IC401
SYSTEM CONTROL & FL DRIVE
Q401
RESET
17
Reset signal generator
REST SW
VDD AVDD
Vss AVss
KEYOUT1
KEYOUT6
KEYIN1
KEYIN7
G1
G8
S1
S16
27
8,29,52
20,33
60
55
42
36
1~7
80
72~77
61~70
S701 (REST)
KEY MATRIX
FL601
FL DISPLAY

**Note:**

▨ Audio signal

# SCHEMATIC DIAGRAM (Parts list on pages 46, 47, 52, 53.)

(This schematic diagram may be modified at any time with development of new technology.)

**Note:**

- **S11** : Voltage adj. switch in "240V" position.
  〔For (GC) area only.〕
  (110V ↔ 127V ↔ 220V ↔ 240V)
- **S551** : Disc tray "Open/Close" detector switch.
- **S601** : Time mode (TIME MODE) switch.
- **S602** : Spiral (SPIRAL) switch.
- **S603** : Random mode (RANDOM MODE) switch.
- **S604** : Repeat (REPEAT) switch.
- **S607** : Stop (■) switch.
- **S608** : Pause (▮▮) switch.
- **S609** : Play (▶) switch.
- **S610～S614**: Disc (DISC 1～5) switches.
  〔S610: 1, S611: 2, S612: 3, S613: 4, S614: 5〕
- **S615** : Disc skip (DISC SKIP) switch.
- **S616** : Program mode (PROGRAM MODE) switch.
- **S617, 618** : Search (SEARCH) switches.
  〔S617: ◀◀, S618: ▶▶〕
- **S619, 620** : Skip (SKIP) switches.
  〔S619: |◀◀, S620: ▶▶|〕
- **S621** : Loading drawer open/close
  (▲ OPEN/CLOSE) switch.
- **S631** : Power "STANDBY /ON"
  (POWER, STANDBY ON) switch.
- **S651～S662**: Numeric (1～10, 0, > 10) switches.
  S651: (1), S652: (2), S653: (3), S654: (4),
  S655: (5), S656: (6), S657: (7), S658: (8),
  S659: (9), S660: (10), S661: (> 10), S662: (0)
- **S701** : Rest detector.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

*The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used as occation calls. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- The supply part number is described alone in the replacement parts.

| Part No. | Production Part No. | Supply Part No. |
|---|---|---|
| IC11 | LM2940T5M | LM2940T5 |

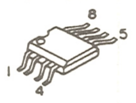
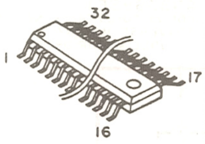
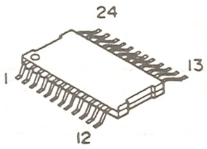
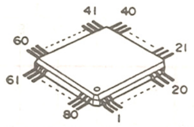
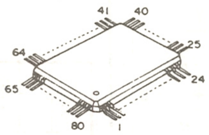
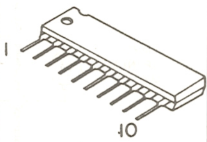
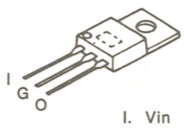
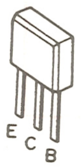
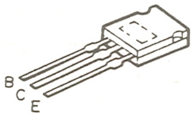
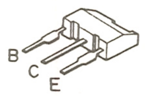
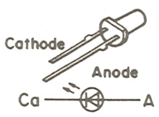
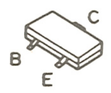
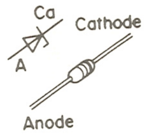
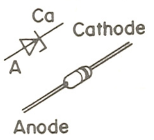
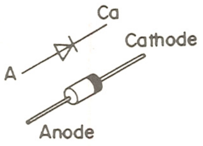
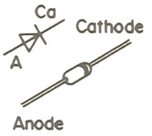
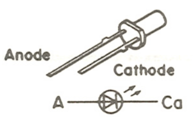
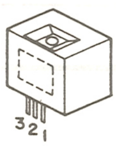
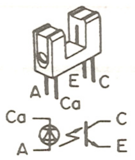
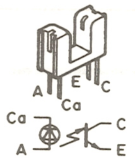
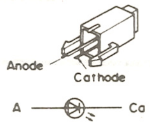
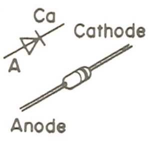
- ▬▬ / ▬ ▬ ▬ : Positive voltage lines and negative voltage lines.
  ⇨ : audio signal lines.

**Caution!**

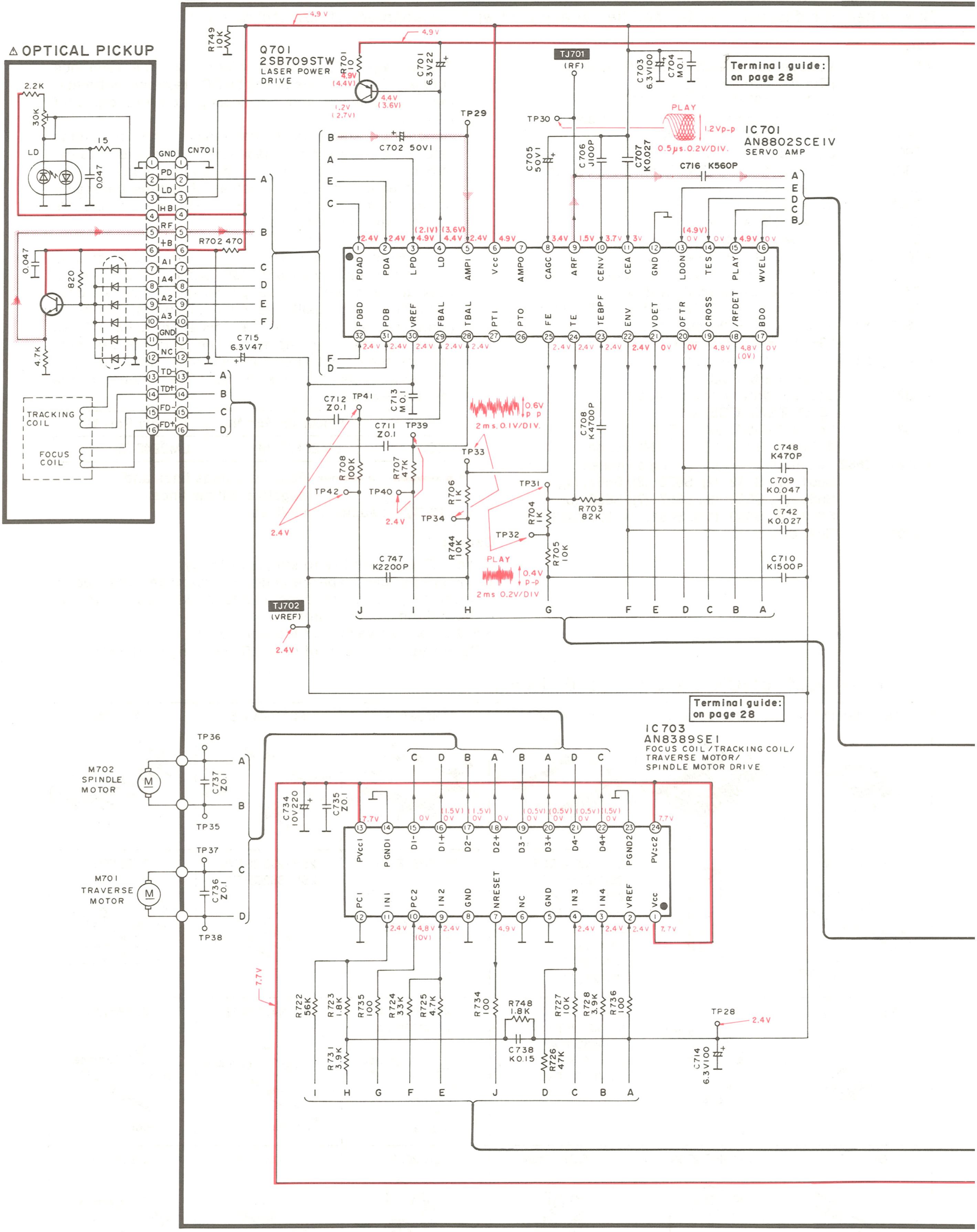
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

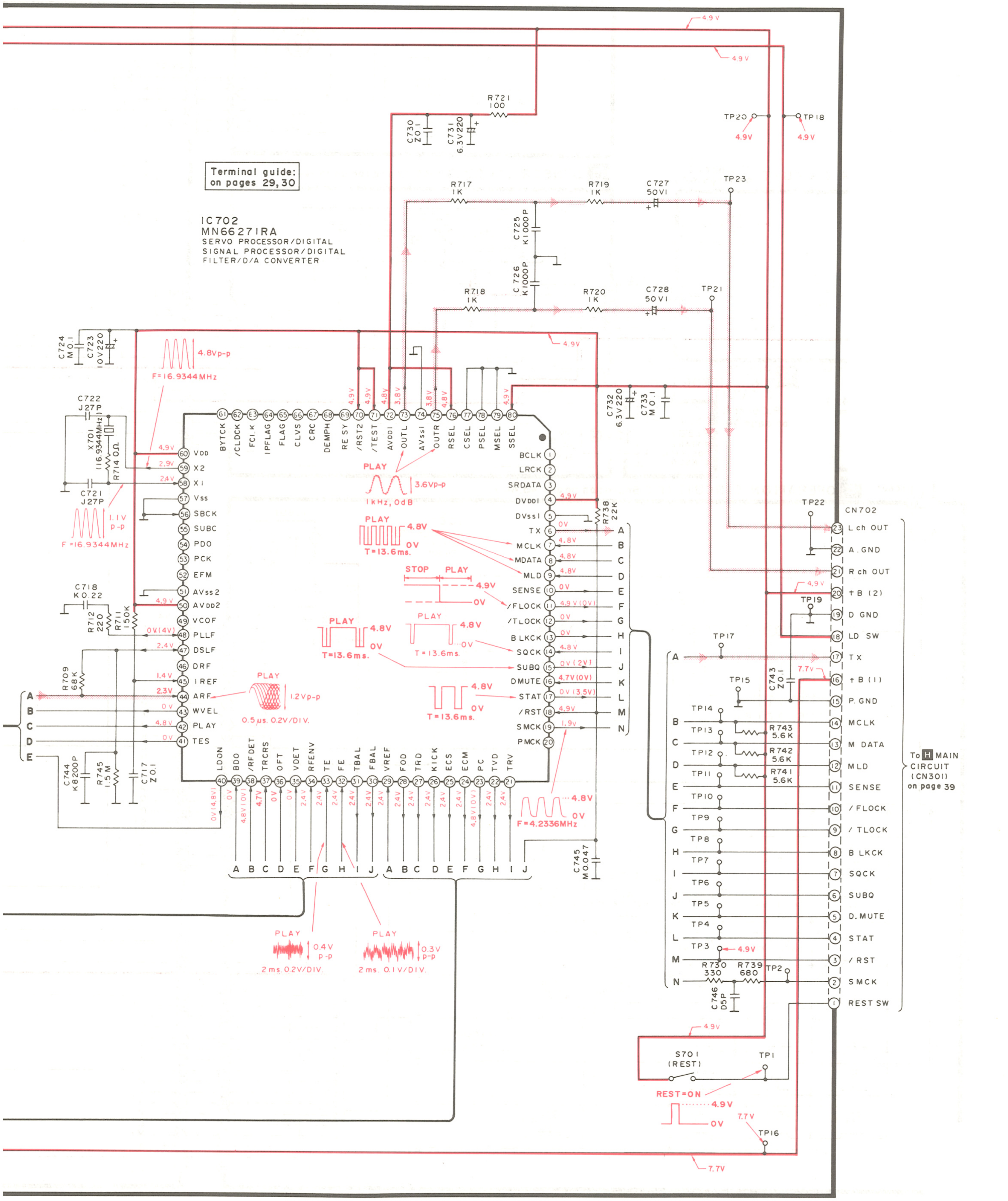
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

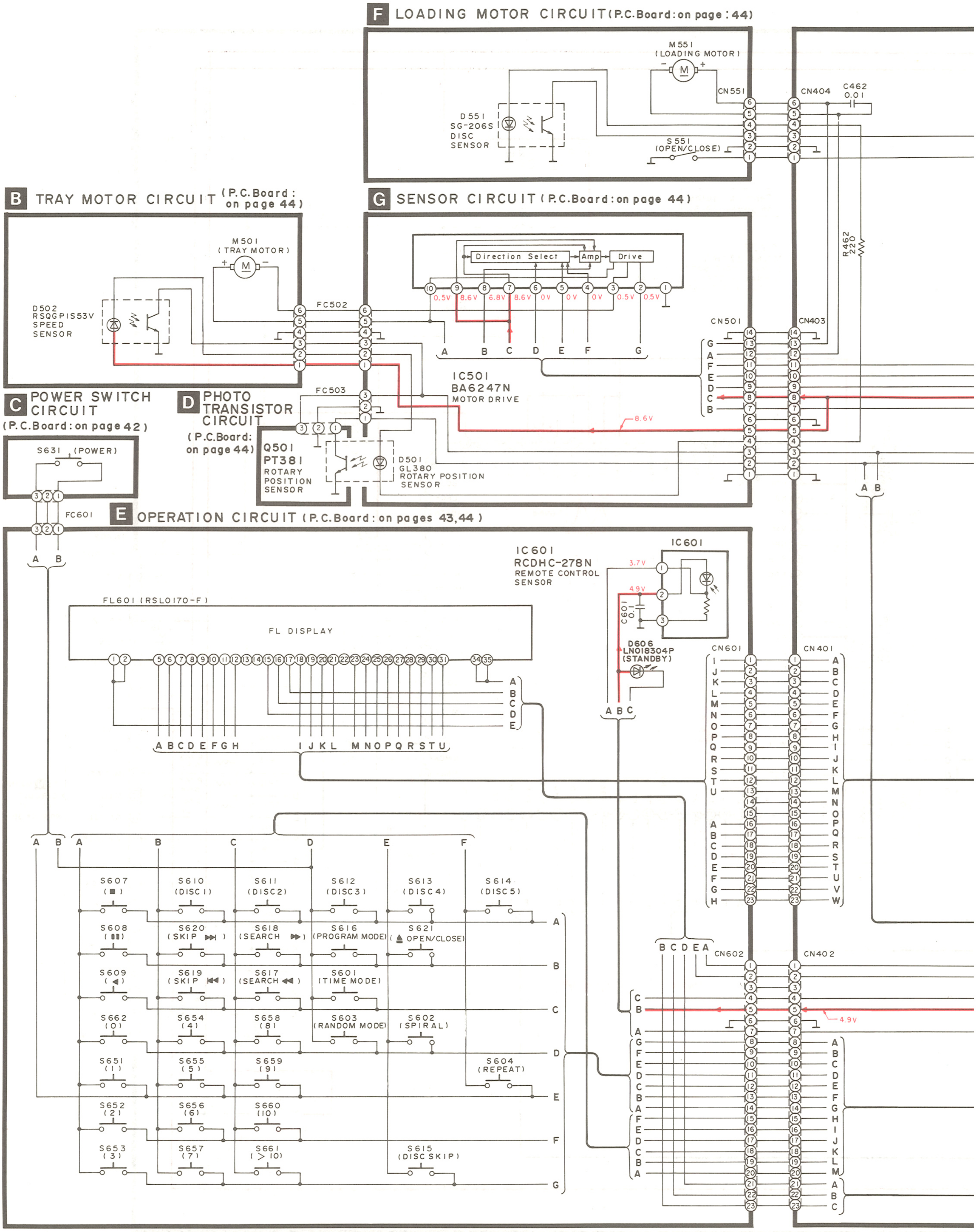
## • Terminal guide of IC's, transistors and diodes.

| | | | | | |
|---|---|---|---|---|---|
| BA4558FHTT1  | AN8802SCE1V  | AN8389SE1  | MN66271RA  | UPD78044A058  | BA6247N  |
| LM2940T5M  I. Vin<br>G. GND<br>O. Vout |  | 2SA1309AIQST<br>2SC3311AIQST<br>2SD1450RSTTA<br>UN4112AITA<br>UN4114TA<br>UN4212AITA<br>UN4214AITA<br>UN4215TA | 2SD2037EFTA  | 2SB1238QSTV6<br>2SD1862QRTV6  | PT381TB  |
| 2SB709STW  |  | MA4051MTA<br>MA4062MTA<br>MA4068HTA<br>MA4091MTA<br>MA4056MTA | MA4100MTA<br>MA4270MTA  | RL1N4003N02  | MA165TA  |
| GL380TB  | RCDHC-278N  | RSQGP1S53V  | SG-206S  | LN018304P  | 1SS291TA  |

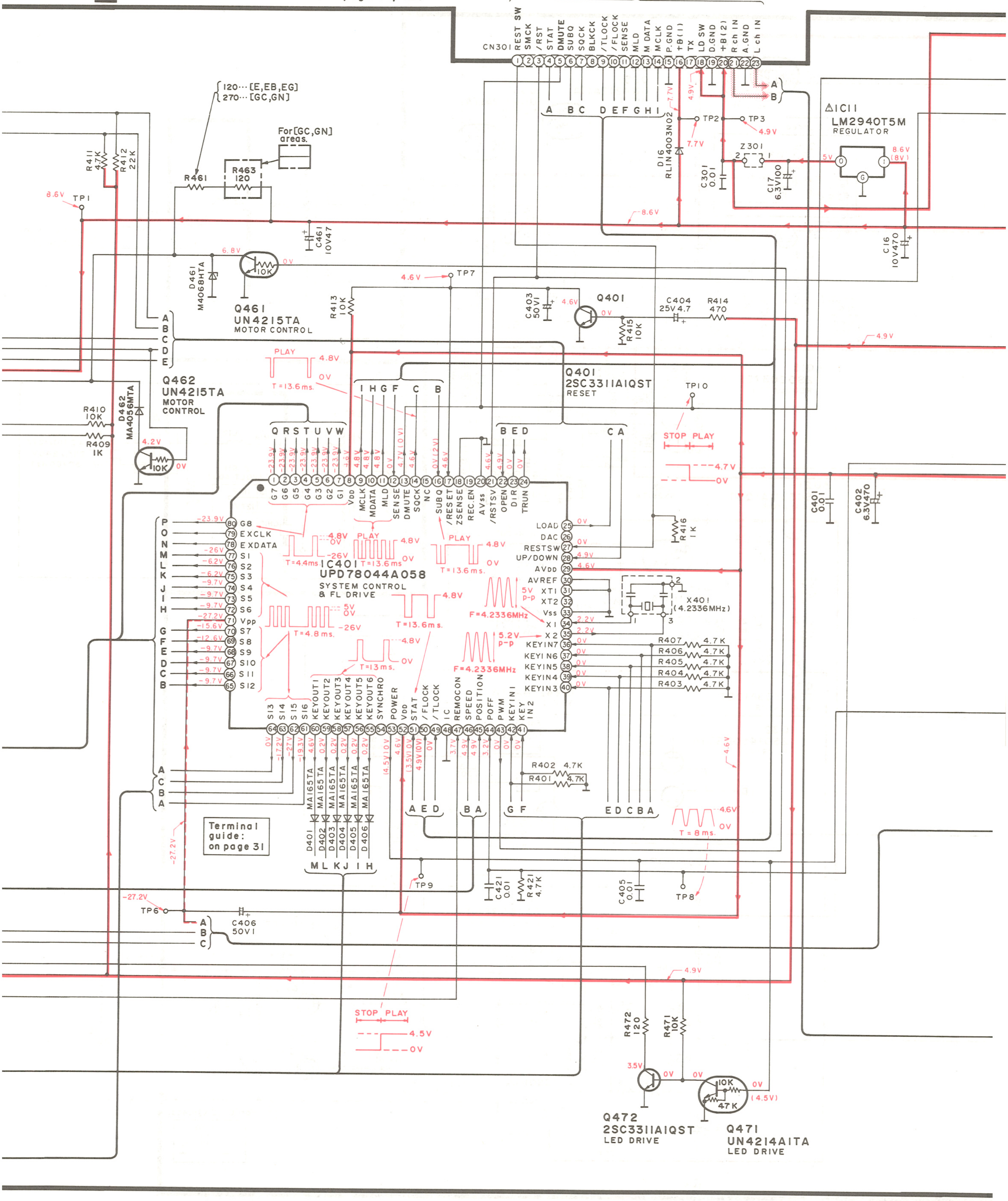
## A SERVO CIRCUIT (P.C.Board: on page 43)

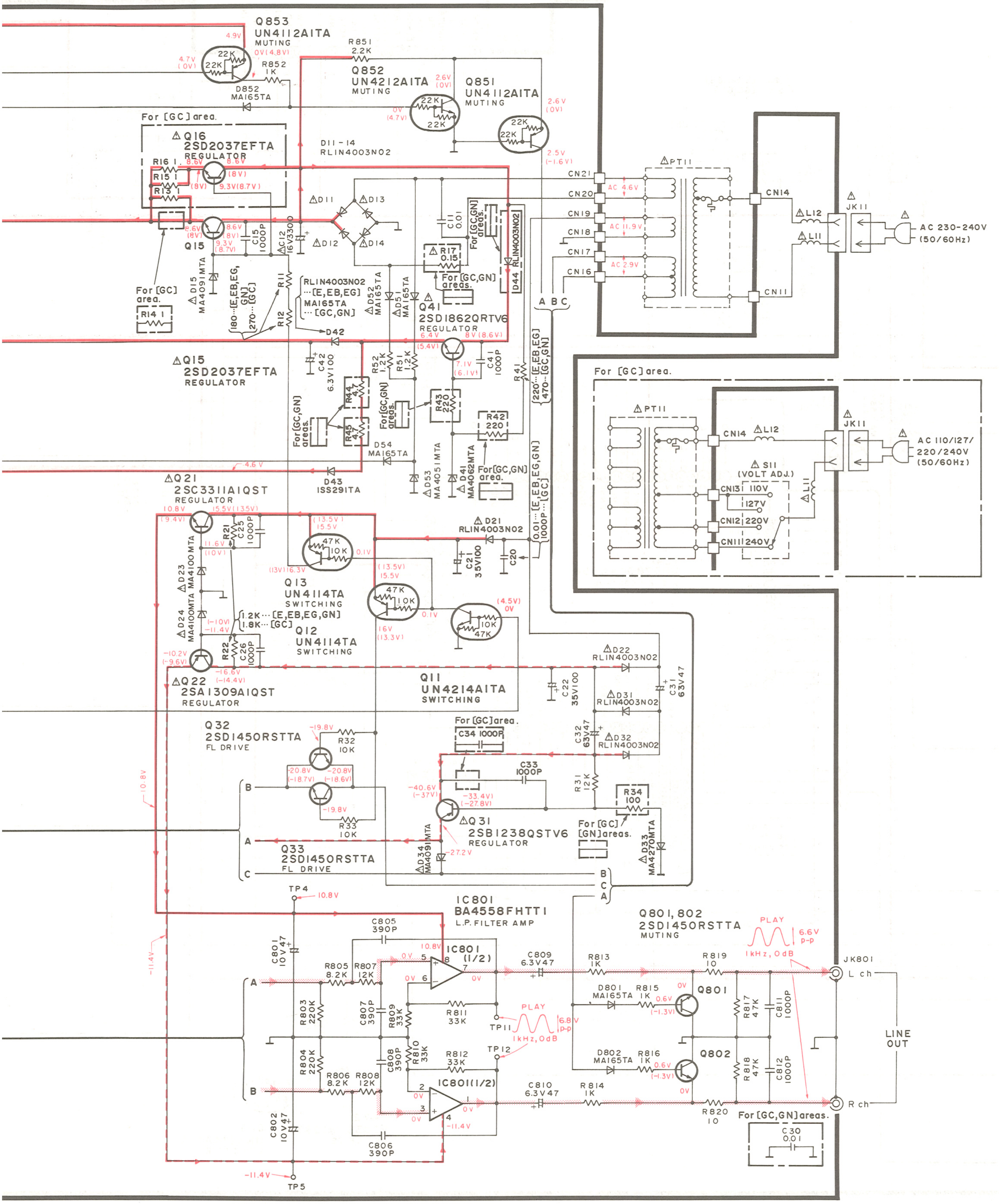

⚠ OPTICAL PICKUP
2.2K
30K
LD
15
0.047
0.047
820
4.7K
TRACKING COIL
FOCUS COIL
GND
PD
LD
HB
RF
+B
A1
A4
A2
A3
GND
NC
TD-
TD+
FD-
FD+
CN701
R749 10K
4.9V
Q701 2SB709STW LASER POWER DRIVE
R701 10
4.9V (4.4V)
1.2V (2.7V)
4.4V (3.6V)
C701 6.3V22
TP29
B
A
E
C
C702 50V1
R702 470
C715 6.3V47
TJ701 (RF)
TP30
C705 50V1
C706 J100P
C707 K0.027
C703 6.3V100
C704 M0.1
PLAY
1.2Vp-p
0.5µs.0.2V/DIV.
Terminal guide: on page 28
IC701 AN8802SCEIV SERVO AMP
C716 K560P
PDAD
PDA
LPD
LD
AMPI
Vcc
AMPO
CAGC
ARF
CENV
CEA
GND
LDON
TES
PLAY
WVEL
PDBD
PDB
VREF
FBAL
TBAL
PTI
PTO
FE
TE
TEBPF
ENV
VDET
OFTR
CROSS
/RFDET
BDO
2.4V
(2.1V) 4.9V
(3.6V) 4.4V
4.9V
3.4V
1.5V
3.7V
3V
(4.9V) 0V
0V
4.9V
0V
2.4V
0V
4.8V
4.8V (0V)
F
D
C712 Z0.1
TP41
C713 M0.1
C711 Z0.1
TP39
0.6V p-p
2ms.0.1V/DIV.
TP33
C708 K4700P
R708 100K
R707 47K
TP42
TP40
R706 1K
TP31
R703 82K
R704 1K
TP34
TP32
R744 10K
R705 10K
C747 K2200P
PLAY
0.4V p-p
2ms 0.2V/DIV
C748 K470P
C709 K0.047
C742 K0.027
C710 K1500P
TJ702 (VREF)
J
I
H
G
F
E
D
C
B
A
Terminal guide: on page 28
IC703 AN8389SE1 FOCUS COIL/TRACKING COIL/ TRAVERSE MOTOR/ SPINDLE MOTOR DRIVE
TP36
M702 SPINDLE MOTOR
M
C737 Z0.1
TP35
TP37
M701 TRAVERSE MOTOR
C736 Z0.1
TP38
C734 10V220
C735 Z0.1
PVcc1
PGND1
D1-
D1+
D2-
D2+
D3-
D3+
D4-
D4+
PGND2
PVcc2
PC1
IN1
PC2
IN2
GND
NRESET
NC
GND
IN3
IN4
VREF
Vcc
7.7V
(1.5V) 0V
(0.5V) 0V
4.8V (0V)
4.9V
R722 56K
R723 1.8K
R735 100
R724 33K
R725 4.7K
R734 100
R748 1.8K
C738 K0.15
R726 47K
R727 10K
R728 3.9K
R736 100
R731 3.9K
TP28
C714 6.3V100


Terminal guide: on pages 29, 30
IC702
MN66271RA
SERVO PROCESSOR/DIGITAL SIGNAL PROCESSOR/DIGITAL FILTER/D/A CONVERTER
R721 100
C730 Z0.1
C731 6.3V220
R717 1K
R719 1K
C727 50V1
TP23
TP20
TP18
4.9V
C725 K1000P
C726 K1000P
R718 1K
R720 1K
C728 50V1
TP21
C724 M0.1
C723 10V220
4.8Vp-p
F=16.9344MHz
C722 J27P
X701 (16.9344MHz)
R714 1.0Ω
C721 J27P
1.1V p-p
F=16.9344MHz
C718 K0.22
R712 220
R711 150K
R709 68K
C744 K8200P
R745 1.5M
C717 Z0.1
C732 6.3V220
C733 M0.1
R738 22K
C745 M0.047
BYTCK
/CLDCK
FCLK
IPFLAG
FLAG
CLVS
CRC
DEMPH
RESY
/RST2
/TEST
AVDD1
OUTL
AVss1
OUTR
RSEL
CSEL
PSEL
MSEL
SSEL
VDD
X2
X1
Vss
SBCK
SUBC
PDO
PCK
EFM
AVss2
AVDD2
VCOF
PLLF
DSLF
DRF
IREF
ARF
WVEL
PLAY
TES
BCLK
LRCK
SRDATA
DVDD1
DVss1
TX
MCLK
MDATA
MLD
SENSE
/FLOCK
/TLOCK
BLKCK
SQCK
SUBQ
DMUTE
STAT
/RST
SMCK
PMCK
LDON
BDO
/RFDET
TRCRS
OFT
VDET
RFENV
TE
FE
TBAL
FBAL
VREF
FOD
TRD
KICK
ECS
ECM
PC
TVD
TRV
PLAY
3.6Vp-p
1kHz, 0dB
PLAY 4.8V 0V
T=13.6ms.
STOP PLAY 4.9V 0V
PLAY 4.8V 0V T=13.6ms.
PLAY 4.8V 0V T=13.6ms.
4.8V 0V T=13.6ms.
PLAY 1.2Vp-p
0.5μs. 0.2V/DIV.
4.8V 0V F=4.2336MHz
PLAY 0.4V p-p 2ms. 0.2V/DIV.
PLAY 0.3V p-p 2ms. 0.1V/DIV.
CN702
TP22
TP19
TP17
TP15
TP14
TP13
TP12
TP11
TP10
TP9
TP8
TP7
TP6
TP5
TP4
TP3
TP2
R743 5.6K
R742 5.6K
R741 5.6K
C743 Z0.1
R730 330
R739 680
C746 D5P
L ch OUT
A. GND
R ch OUT
+B (2)
D GND
LD SW
TX
+B (1)
P. GND
MCLK
M DATA
MLD
SENSE
/FLOCK
/TLOCK
BLKCK
SQCK
SUBQ
D. MUTE
STAT
/RST
SMCK
REST SW
To H MAIN CIRCUIT (CN301) on page 39
S701 (REST)
TP1
REST=ON
4.9V 0V
7.7V
TP16


F LOADING MOTOR CIRCUIT (P.C.Board: on page: 44)
M551 (LOADING MOTOR)
CN551
CN404
C462 0.01
D551 SG-206S DISC SENSOR
S551 (OPEN/CLOSE)
B TRAY MOTOR CIRCUIT (P.C.Board: on page 44)
M501 (TRAY MOTOR)
D502 RSQGPIS53V SPEED SENSOR
FC502
G SENSOR CIRCUIT (P.C.Board: on page 44)
Direction Select
Amp
Drive
0.5V
8.6V
6.8V
8.6V
0V
0V
0V
0.5V
0.5V
IC501 BA6247N MOTOR DRIVE
R462 220
CN501
CN403
8.6V
C POWER SWITCH CIRCUIT (P.C.Board: on page 42)
S631 (POWER)
FC601
D PHOTO TRANSISTOR CIRCUIT (P.C.Board: on page 44)
FC503
Q501 PT381 ROTARY POSITION SENSOR
D501 GL380 ROTARY POSITION SENSOR
E OPERATION CIRCUIT (P.C.Board: on pages 43,44)
IC601 RCDHC-278N REMOTE CONTROL SENSOR
IC601
3.7V
4.9V
C601 0.1
D606 LN01830AP (STANDBY)
FL601 (RSL0170-F)
FL DISPLAY
CN601
CN401
S607 (■)
S610 (DISC 1)
S611 (DISC 2)
S612 (DISC 3)
S613 (DISC 4)
S614 (DISC 5)
S608 (▮▮)
S620 (SKIP ▶▶|)
S618 (SEARCH ▶▶)
S616 (PROGRAM MODE)
S621 (▲ OPEN/CLOSE)
S609 (◀)
S619 (SKIP |◀◀)
S617 (SEARCH ◀◀)
S601 (TIME MODE)
S662 (0)
S654 (4)
S658 (8)
S603 (RANDOM MODE)
S602 (SPIRAL)
S651 (1)
S655 (5)
S659 (9)
S604 (REPEAT)
S652 (2)
S656 (6)
S660 (10)
S653 (3)
S657 (7)
S661 (> 10)
S615 (DISC SKIP)
CN602
CN402
4.9V

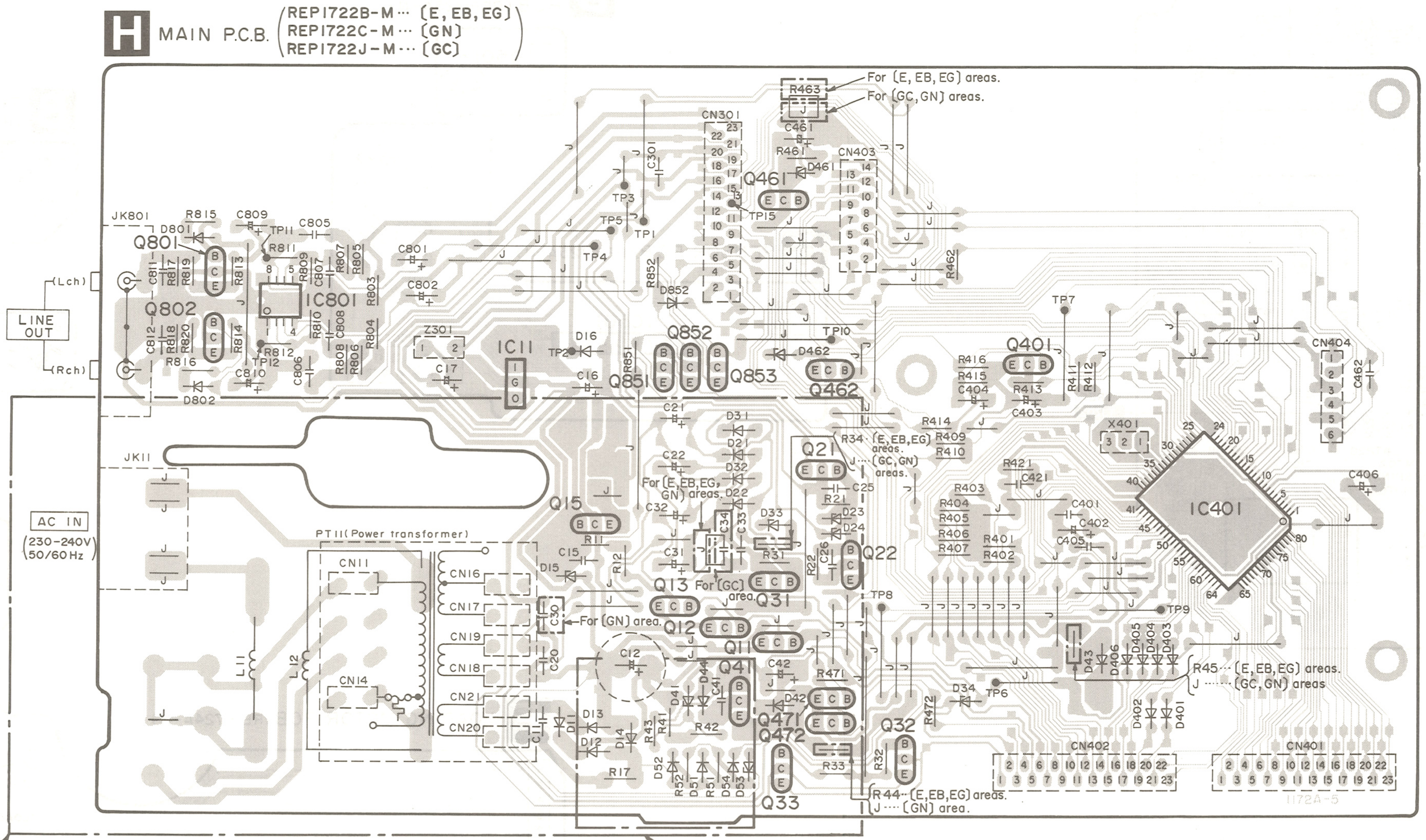
## H MAIN CIRCUIT (P.C.Board: on page 41, 42)

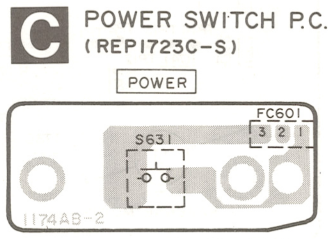

To A SERVO CIRCUIT (CN702) on page 37
CN301
REST SW
SMCK
/RST
STAT
DMUTE
SUBQ
SQCK
BLKCK
/TLOCK
/FLOCK
SENSE
MLD
M DATA
MCLK
P.GND
+B(1)
TX
LD SW
D.GND
+B(2)
R ch IN
A.GND
L ch IN
120…[E,EB,EG]
270…[GC,GN]
For [GC,GN] areas.
R463 120
R461
R411 4.7K
R412 22K
8.6V
TP1
C461 10V47
6.8V
0V
D461 M4068HTA
10K
Q461
UN4215TA
MOTOR CONTROL
R413 10K
4.6V
TP7
C403 50V1
Q401
C404 25V4.7
R414 470
R415 10K
TP2
TP3
4.9V
7.7V
D16 RLIN4003N02
C301 0.01
Z301
C17 6.3V100
ΔIC11
LM2940T5M
REGULATOR
5V
8.6V (8V)
C16 10V470
Q462
UN4215TA
MOTOR CONTROL
D462 MA4056MTA
R410 10K
R409 1K
4.2V
PLAY
4.8V
T=13.6ms.
Q401
2SC3311AIQST
RESET
TP10
STOP PLAY
4.7V
C401 0.01
C402 6.3V470
R416 1K
G7 G6 G5 G4 G3 G2 G1
VDD
MCLK
MDATA
MLD
SENSE
DMUTE
SQCK
NC
SUBQ
/RESET
ZSENSE
REC.EN
AVss
/RSTSV
OPEN
DIR
TRUN
LOAD
DAC
RESTSW
UP/DOWN
AVDD
AVREF
XT1
XT2
Vss
X1
X2
KEYIN7
KEYIN6
KEYIN5
KEYIN4
KEYIN3
G8
EXCLK
EXDATA
S1 S2 S3 S4 S5 S6
VPP
S7 S8 S9 S10 S11 S12
S13 S14 S15 S16
KEYOUT1 KEYOUT2 KEYOUT3 KEYOUT4 KEYOUT5 KEYOUT6
SYNCHRO
POWER
VDD
STAT
/FLOCK
/TLOCK
IC
REMOCON
SPEED
POSITION
POFF
PWM
KEYIN1
KEY IN2
IC401
UPD78044A058
SYSTEM CONTROL
& FL DRIVE
-23.9V
-26V
-6.2V
-9.7V
-27.2V
-15.6V
-12.6V
T=4.4ms
T=13.6ms
T=4.8ms.
T=13ms.
T=8ms.
5V
0V
F=4.2336MHz
5V p-p
5.2V p-p
2.2V
X401 (4.2336MHz)
R407 4.7K
R406 4.7K
R405 4.7K
R404 4.7K
R403 4.7K
R402 4.7K
R401 4.7K
MA165TA
D401 D402 D403 D404 D405 D406
Terminal guide: on page 31
TP9
C421 0.01
R421 4.7K
C405 0.01
TP8
TP6
C406 50V1
-27.2V
4.5V
R472 120
R471 10K
3.5V
47K
(4.5V)
Q472
2SC3311AIQST
LED DRIVE
Q471
UN4214AITA
LED DRIVE

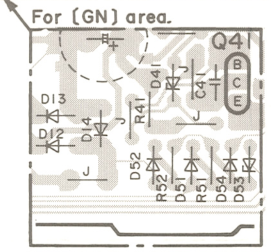

Q853
UN4112AITA
MUTING
R851
2.2K
R852
1K
D852
MA165TA
Q852
UN4212AITA
MUTING
Q851
UN4112AITA
MUTING
For [GC] area.
Q16
2SD2037EFTA
REGULATOR
R16
R15
R13
Q15
For [GC] area.
R14
D11-14
RLIN4003NO2
D11
D12
D13
D14
C101
0.01
R17
0.15
For [GC,GN] areas.
D44 RLIN4003NO2
RLIN4003NO2 …[E,EB,EG]
MA165TA …[GC,GN]
C15
1000P
C12
16V3300
D15
MA4091MTA
180…[E,EB,EG,GN]
270…[GC]
R11
R12
D42
D52
MA165TA
D51
MA165TA
Q41
2SD1862QRTV6
REGULATOR
Q15
2SD2037EFTA
REGULATOR
C42
6.3V100
R52
1.2K
R51
1.2K
C41
1000P
R41
220…[E,EB,EG]
470…[GC,GN]
R44
4.7
R45
4.7
For [GC,GN] areas.
R43
220
R42
220
D54
MA165TA
D43
1SS291TA
D53
MA4051MTA
D41
MA4062MTA
For [GC,GN] area.
0.01…[E,EB,EG,GN]
1000P…[GC]
Q21
2SC3311A1QST
REGULATOR
R21
C25
1000P
D23
MA4100MTA
D24
MA4100MTA
Q13
UN4114TA
SWITCHING
47K
10K
1.2K…[E,EB,EG,GN]
1.8K…[GC]
Q12
UN4114TA
SWITCHING
R22
C26
1000P
D21
RLIN4003NO2
C21
35V100
C20
Q22
2SA1309A1QST
REGULATOR
Q11
UN4214AITA
SWITCHING
D22
RLIN4003NO2
C22
35V100
C31
63V47
D31
RLIN4003NO2
C32
63V47
D32
RLIN4003NO2
Q32
2SD1450RSTTA
FL DRIVE
R32
10K
R33
10K
For [GC] area.
C34 1000P
C33
1000P
R31
12K
R34
100
Q31
2SB1238QSTV6
REGULATOR
For [GC]/[GN] areas.
D34
MA4091MTA
D33
MA4270MTA
Q33
2SD1450RSTTA
FL DRIVE
A
B
C
CN21
CN20
CN19
CN18
CN17
CN16
AC 4.6V
AC 11.9V
AC 2.9V
PT11
CN14
CN11
L12
L11
JK11
AC 230-240V
(50/60Hz)
For [GC] area.
PT11
CN14
L12
JK11
AC 110/127/
220/240V
(50/60Hz)
S11
(VOLT ADJ.)
CN13 110V
127V
CN12 220V
CN11 240V
L11
TP4
10.8V
IC801
BA4558FHTT1
L.P. FILTER AMP
C805
390P
C801
10V47
R805
8.2K
R807
12K
IC801
(1/2)
C809
6.3V47
R813
1K
Q801, 802
2SD1450RSTTA
MUTING
PLAY
6.6V
p-p
1kHz, 0dB
R819
10
JK801
L ch
R803
220K
C807
390P
R809
33K
R811
33K
TP11
PLAY
6.8V
p-p
1kHz, 0dB
D801
MA165TA
R815
1K
Q801
R817
47K
C811
1000P
LINE
OUT
R804
220K
C808
390P
R810
33K
R812
33K
TP12
D802
MA165TA
R816
1K
Q802
R818
47K
C812
1000P
R806
8.2K
R808
12K
IC801(1/2)
C810
6.3V47
R814
1K
R820
10
R ch
C802
10V47
C806
390P
For [GC,GN] areas.
C30
0.01
-11.4V
TP5
4.9V
4.7V (0V)
0V (4.8V)
2.6V (0V)
0V (4.7V)
2.6V (0V)
2.5V (-1.6V)
8.6V
9.3V (8.7V)
6.4V
8V (8.6V)
(5.4V)
7.1V (6.1V)
4.6V
10.8V (9.4V)
15.5V (13.5V)
11.6V (10V)
(13.5V) 15.5V
0.1V
(13V) 16.3V
(4.5V) 0V
16V (13.3V)
(-10V) -11.4V
-10.2V (-9.6V)
-16.6V (-14.4V)
-19.8V
-20.8V (-18.7V)
-20.8V (-18.6V)
-40.6V (-37V)
-33.4V (-27.8V)
-27.2V
10.8V
-11.4V
0V
0.6V (-1.3V)

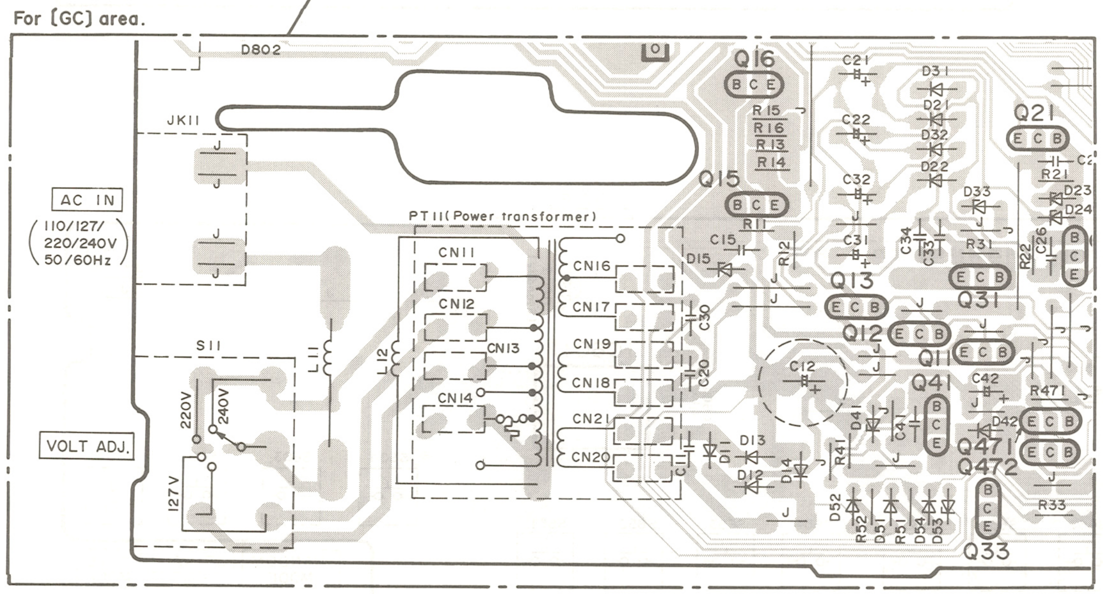
## PRINTED CIRCUIT BOARDS

(This printed circuit board diagram may be modified at any time with the development of new technology.)

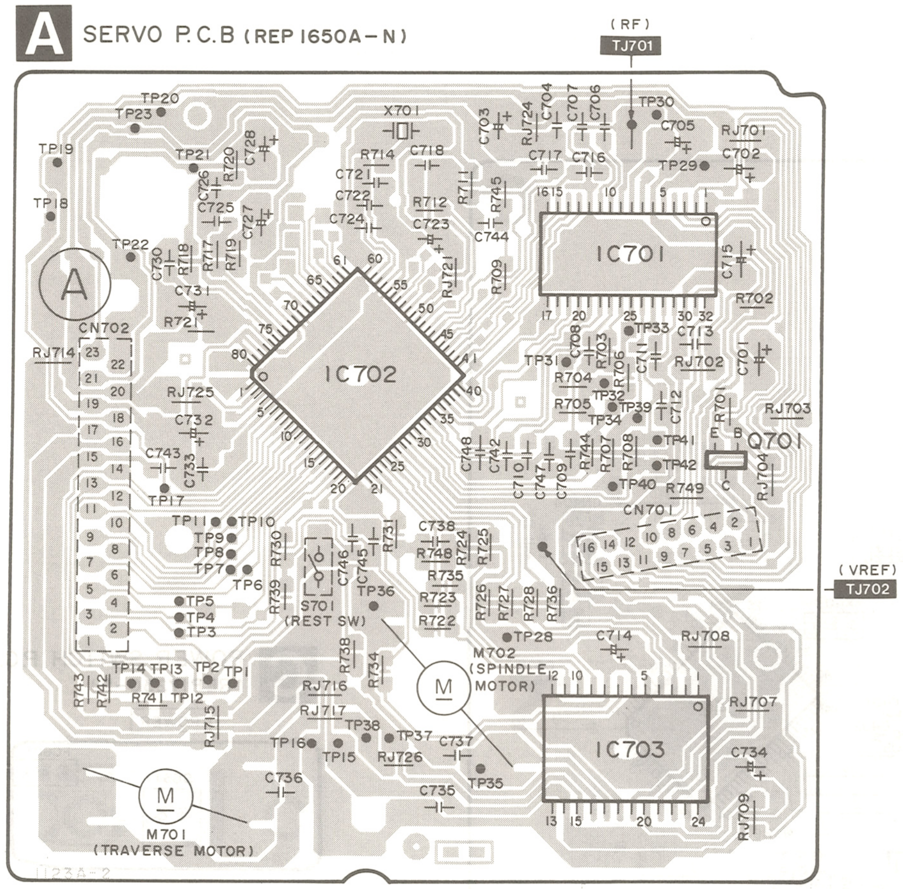

H
MAIN P.C.B.
REP1722B-M··· (E, EB, EG)
REP1722C-M··· (GN)
REP1722J-M··· (GC)
For (E, EB, EG) areas.
For (GC, GN) areas.
R463
C461
R461
D461
Q461
CN301
CN403
TP15
TP3
TP5
TP1
TP4
C301
R852
D852
Q852
Q851
Q853
R851
D462
Q462
TP10
TP7
Q401
R416
R415
C404
R413
C403
R411
R412
R462
CN404
C462
JK801
R815
C809
C805
TP11
D801
Q801
R811
R813
R817
R819
IC801
Q802
R818
R820
R814
R812
TP12
R816
C810
D802
C801
C802
Z301
IC11
C17
D16
TP2
C16
C21
LINE OUT
Lch
Rch
JK11
AC IN
(230-240V 50/60 Hz)
PT11 (Power transformer)
CN11
CN16
CN17
CN19
CN18
CN14
CN21
CN20
L11
L12
Q15
R11
C15
D15
R12
C22
C32
C31
C33
C34
For (E, EB, EG, GN) areas.
D31
D21
D32
D22
D33
Q13
For (GC) area.
Q31
Q12
Q11
For (GN) area.
C30
C20
C12
D41
D44
Q41
R41
R42
Q471
Q472
D13
D11
D12
D14
R43
R17
D52
R52
D51
R51
D54
D53
Q33
C42
R471
R472
D42
R33
R32
Q32
R44···(E, EB, EG) areas.
J····(GN) area.
Q21
R34···(E, EB, EG) areas.
J····(GC, GN) areas.
C25
R21
D23
D24
C26
R22
Q22
R31
TP8
X401
R414
R409
R410
R421
C421
R403
R404
R405
R406
R407
R401
R402
C401
C402
C405
IC401
C406
TP9
D43
D406
D405
D404
D403
R45···(E, EB, EG) areas.
J·····(GC, GN) areas
D34
TP6
D402
D401
CN402
CN401
1172A-5


C
POWER SWITCH P.C.B.
(REP1723C-S)
POWER
FC601
S631
1174AB-2

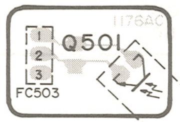

For (GN) area.
Q41
D41
C41
D13
D12
D14
R41
D52
R52
D51
R51
D54
D53


For (GC) area.
D802
JK11
AC IN
(110/127/220/240V 50/60Hz)
S11
VOLT ADJ.
220V
240V
127V
PT11 (Power transformer)
CN11
CN12
CN13
CN14
CN16
CN17
CN19
CN18
CN21
CN20
L11
L12
Q16
R15
R16
R13
R14
Q15
R11
C15
D15
R12
C21
C22
C32
C31
C34
C33
D31
D21
D32
D22
D33
Q21
R21
D23
D24
C26
R22
R31
Q13
Q31
Q12
Q11
C30
C20
C12
C11
Q41
D41
C41
C42
R471
D42
Q471
Q472
D13
D11
D12
D14
R41
D52
R52
D51
R51
D54
D53
Q33
R33

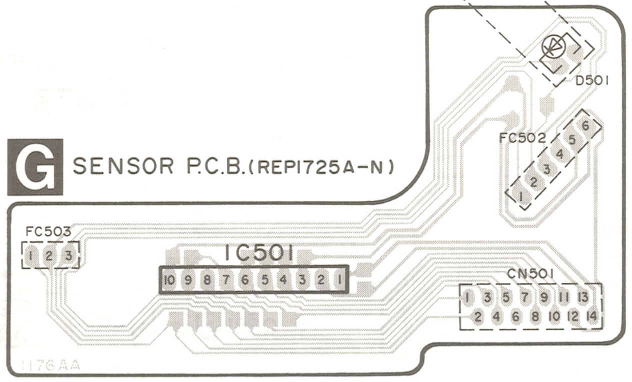
## A SERVO P.C.B (REP1650A-N)


(RF)
TJ701
(VREF)
TJ702
IC701
IC702
IC703
X701
Q701
CN701
CN702
S701
(REST SW)
M702
(SPINDLE MOTOR)
M701
(TRAVERSE MOTOR)
TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20 TP21 TP22 TP23 TP28 TP29 TP30 TP31 TP32 TP33 TP34 TP35 TP36 TP37 TP38 TP39 TP40 TP41 TP42
RJ701 RJ702 RJ703 RJ704 RJ707 RJ708 RJ709 RJ714 RJ715 RJ716 RJ717 RJ724 RJ725 RJ726
R701 R702 R703 R704 R705 R706 R707 R708 R709 R711 R712 R714 R715 R717 R718 R719 R720 R721 R722 R723 R724 R725 R726 R727 R728 R730 R731 R734 R735 R736 R738 R739 R741 R742 R743 R744 R745 R748 R749
C701 C702 C703 C704 C705 C706 C707 C708 C709 C710 C711 C712 C713 C714 C715 C716 C717 C718 C721 C722 C723 C724 C725 C726 C727 C728 C730 C731 C732 C733 C734 C735 C736 C737 C738 C742 C743 C744 C745 C746 C747 C748

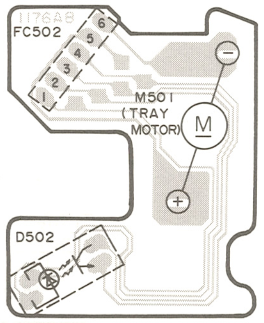
## D PHOTO TRANSISTOR P.C.B.(REP1725A-N)


Q501
FC503
1
2
3

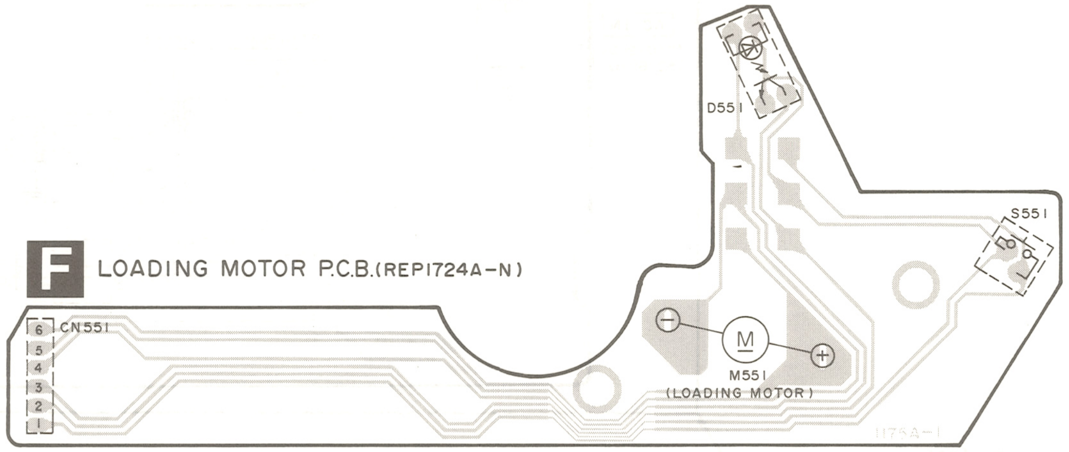
## G SENSOR P.C.B.(REP1725A-N)


FC503
1 2 3
IC501
10 9 8 7 6 5 4 3 2 1
CN501
1 3 5 7 9 11 13
2 4 6 8 10 12 14
FC502
D501

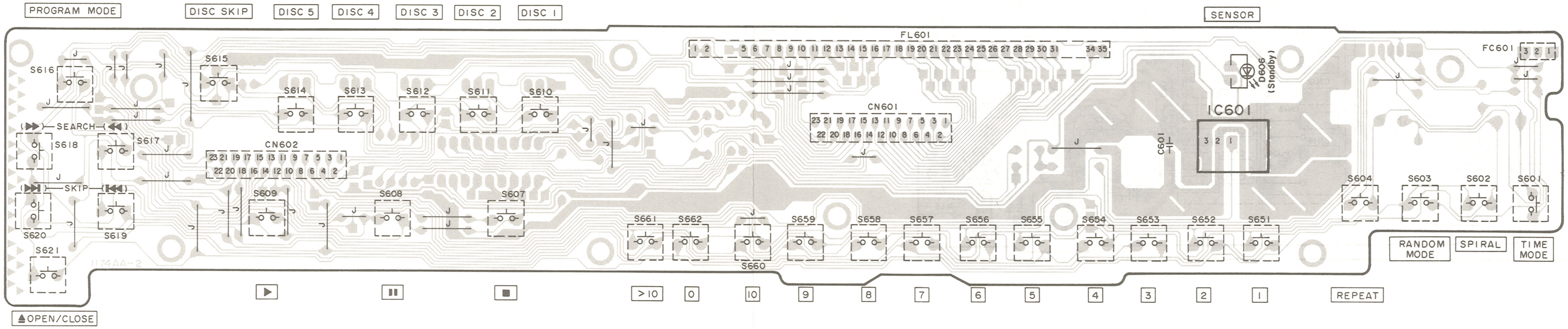
## B TRAY MOTOR P.C.B.(REP1725A-N)


FC502
M501
(TRAY MOTOR)
M
D502

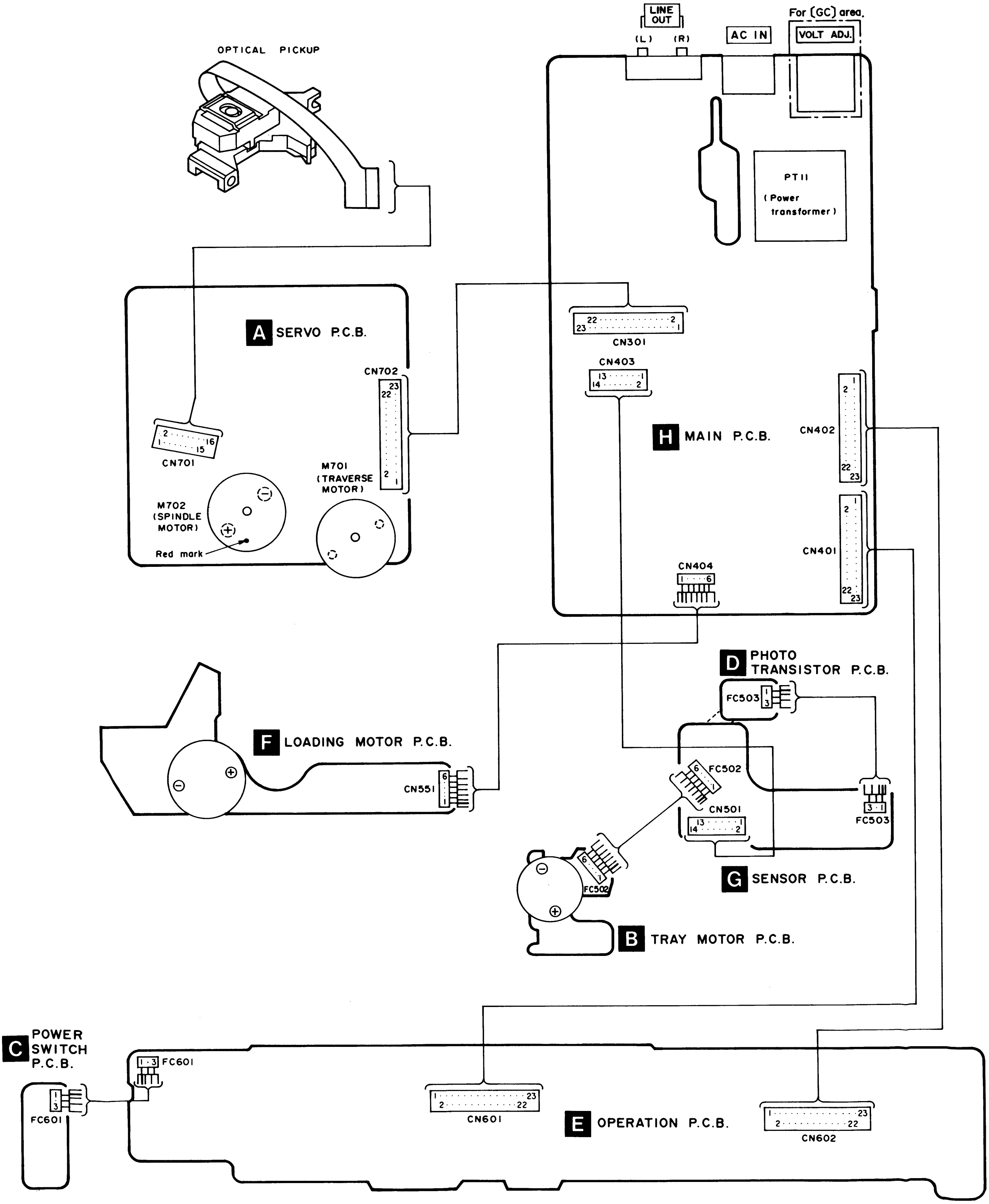
## F LOADING MOTOR P.C.B.(REP1724A-N)


D551
S551
CN551
M
M551
(LOADING MOTOR)

## E OPERATION P.C.B.(REP1723C-S)


PROGRAM MODE
DISC SKIP
DISC 5
DISC 4
DISC 3
DISC 2
DISC 1
SENSOR
FL601
FC601
IC601
D606 (Standby)
C601
CN601
CN602
SEARCH
SKIP
S601 S602 S603 S604 S607 S608 S609 S610 S611 S612 S613 S614 S615 S616 S617 S618 S619 S620 S621
S651 S652 S653 S654 S655 S656 S657 S658 S659 S660 S661 S662
RANDOM MODE
SPIRAL
TIME MODE
OPEN/CLOSE
>10
0
10
9
8
7
6
5
4
3
2
1
REPEAT

# WIRING CONNECTION DIAGRAM


LINE OUT
(L)
(R)
AC IN
For (GC) area.
VOLT ADJ.
OPTICAL PICKUP
PT11
(Power transformer)
A SERVO P.C.B.
CN702
23
22
2
1
CN701
2
16
1
15
M701
(TRAVERSE MOTOR)
M702
(SPINDLE MOTOR)
Red mark
22
2
23
1
CN301
CN403
13
1
14
2
H MAIN P.C.B.
CN402
CN401
CN404
1
6
D PHOTO TRANSISTOR P.C.B.
FC503
F LOADING MOTOR P.C.B.
CN551
FC502
CN501
G SENSOR P.C.B.
B TRAY MOTOR P.C.B.
C POWER SWITCH P.C.B.
FC601
CN601
E OPERATION P.C.B.
CN602

# ■ REPLACEMENT PARTS LIST

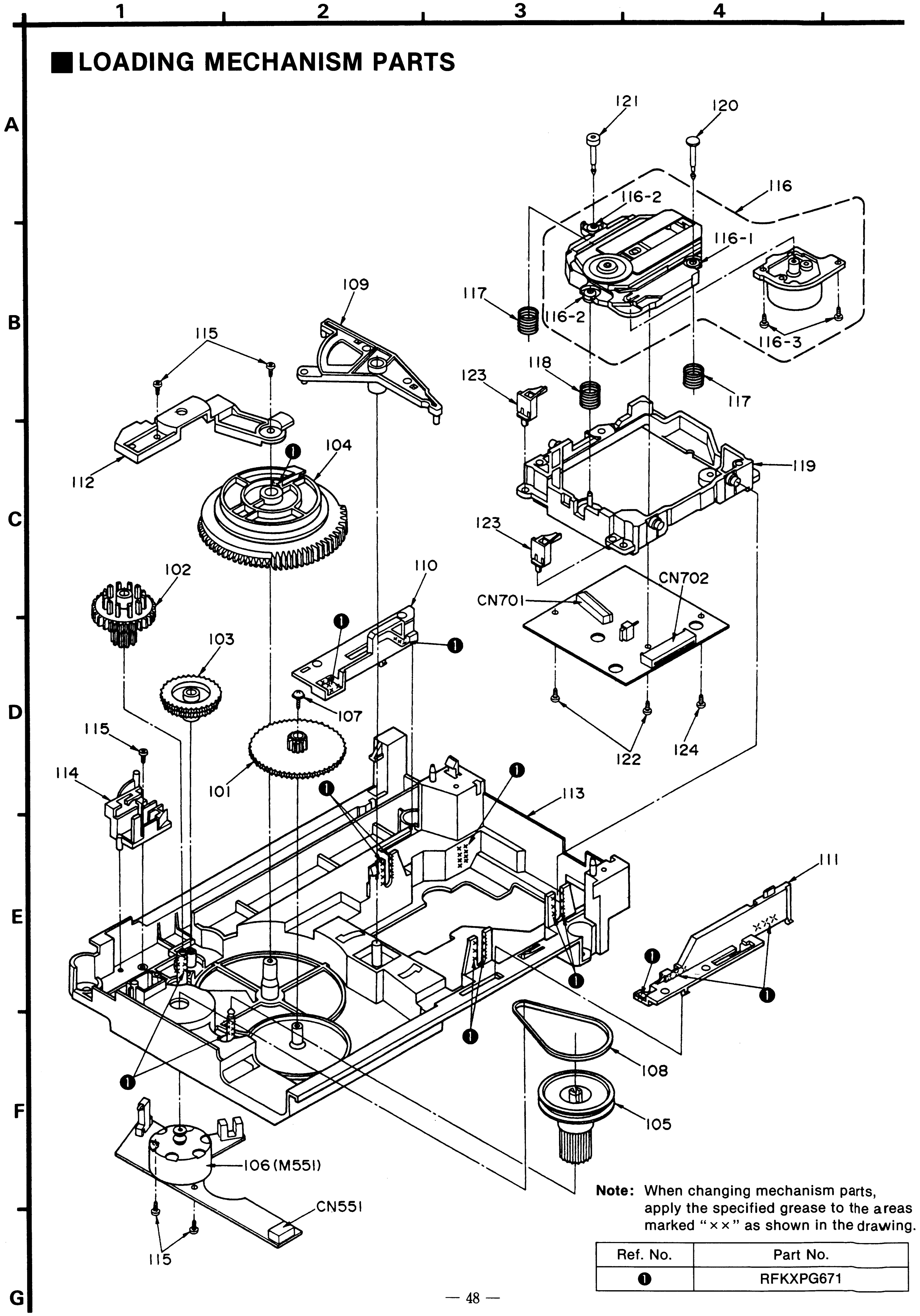
**Notes:** *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Warning: This product uses a laser diode. Refer to caution statements on page 2.
*ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden.

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | INTEGRATED CIRCUIT(S) | |
| | | | |
| IC11 | LM2940T5 | REGULATOR | ⚠ |
| IC401 | UPD78044A058 | SYSTEM CONTROL&FL DRIVE | |
| IC501 | BA6247N | MOTOR DRIVE | |
| IC601 | RCDHC-278N | REMOTE CONTROL SENSOR | |
| IC801 | BA4558FHTT1 | L. P. F. | |
| | | | |
| | | TRANSISTOR(S) | |
| | | | |
| Q11 | UN4214TA | TRANSISTOR | |
| Q12 | UN4114TA | TRANSISTOR | |
| Q13 | UN4114TA | TRANSISTOR | |
| Q15 | 2SD2037EFTA | TRANSISTOR | ⚠ |
| Q16 | 2SD2037EFTA | TRANSISTOR | (GC)⚠ |
| Q21 | 2SC3311AIQST | TRANSISTOR | ⚠ |
| Q22 | 2SA1309AIQST | TRANSISTOR | ⚠ |
| Q31 | 2SB1238QSTV6 | TRANSISTOR | ⚠ |
| Q32, 33 | 2SD1450RTA | TRANSISTOR | |
| Q41 | 2SD1862QRTV6 | TRANSISTOR | ⚠ |
| Q401 | 2SC3311AIQST | TRANSISTOR | |
| Q461, 462 | UN4215 | TRANSISTOR | |
| Q471 | UN4214TA | TRANSISTOR | |
| Q472 | 2SC3311AIQST | TRANSISTOR | |
| Q501 | PT381TB | TRANSISTOR | |
| Q801, 802 | 2SD1450RTA | TRANSISTOR | |
| Q851 | UN4112 | TRANSISTOR | |
| Q852 | UN4212TA | TRANSISTOR | |
| Q853 | UN4112 | TRANSISTOR | |
| | | | |
| | | DIODE(S) | |
| | | | |
| D11-14 | RL1N4003N02 | DIODE | ⚠ |
| D15 | MA4091-M | DIODE | ⚠ |
| D16 | RL1N4003N02 | DIODE | |
| D21, 22 | RL1N4003N02 | DIODE | ⚠ |
| D23, 24 | MA4100MTA | DIODE | ⚠ |
| D31, 32 | RL1N4003N02 | DIODE | ⚠ |
| D33 | MA4270 | DIODE | ⚠ |
| D34 | MA4091-M | DIODE | ⚠ |
| D41 | MA4062MTA | DIODE | ⚠ |
| D42 | RL1N4003N02 | DIODE | (E, EB, EG) |
| D42 | MA165 | DIODE | (GC, GN) |
| D43 | 1SS291TA | DIODE | |
| D44 | RL1N4003N02 | DIODE | (E, EB, EG) |
| D51, 52 | MA165 | DIODE | ⚠ |
| D53 | MA4051MTA | DIODE | ⚠ |
| D54 | MA165 | DIODE | |
| D401-406 | MA165 | DIODE | |
| D461 | MA4068HTA | DIODE | |
| D462 | MA4056MTA | DIODE | |
| D501 | GL380TB | L. E. D. | |
| D502 | RSQGP1S53V | DIODE | |
| D551 | SG-206S | DIODE | |
| D606 | LN018304P | L. E. D. | |
| D801, 802 | MA165 | DIODE | |
| D852 | MA165 | DIODE | |
| | | | |
| | | COIL(S) | |
| | | | |
| L11, 12 | RLQX400MT-D | COIL | ⚠ |
| | | | |
| | | TRANSFORMER(S) | |
| | | | |
| PT11 | RTP1K4B023-X | POWER TRANSFORMER | (E, EB, EG, GN)⚠ |
| PT11 | RTP1K4E030-X | POWER TRANSFORMER | (GC)⚠ |
| | | | |
| | | COMPONENT COMBINATION(S) | |
| | | | |
| Z301 | BL02RN2R65T2 | COMBINATION PART | |
| | | | |
| | | OSCILLATOR(S) | |
| | | | |
| X401 | RSXY4M23M01T | OSCILLATOR(4. 2336MHz) | |
| | | | |
| | | DISPLAY TUBE(S) | |
| | | | |
| FL601 | RSL0170-F | DISPLAY TUBE | |
| | | | |
| | | SWITCH(ES) | |
| | | | |
| S11 | RSR4A003S-1H | VOLTAGE ADJ. | (GC)⚠ |
| S551 | RSH1A005 | OPEN/CLOSE DETECTOR | |
| S601 | EVQ21405R | TIME MODE | |
| S602 | EVQ21405R | SPIRAL | |
| S603 | EVQ21405R | RANDOM MODE | |
| S604 | EVQ21405R | REPEAT | |
| S607 | EVQ21405R | STOP | |
| S608 | EVQ21405R | PAUSE | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| S609 | EVQ21405R | PLAY | |
| S610 | EVQ21405R | DISC 1 | |
| S611 | EVQ21405R | DISC 2 | |
| S612 | EVQ21405R | DISC 3 | |
| S613 | EVQ21405R | DISC 4 | |
| S614 | EVQ21405R | DISC 5 | |
| S615 | EVQ21405R | DISC SKIP | |
| S616 | EVQ21405R | PROGRAM MODE | |
| S617 | EVQ21405R | R. SEARCH | |
| S618 | EVQ21405R | F. SEARCH | |
| S619 | EVQ21405R | R. SKIP | |
| S620 | EVQ21405R | F. SKIP | |
| S621 | EVQ21405R | OPEN/CLOSE | |
| S631 | EVQ21405R | POWER | |
| S651 | EVQ21405R | PRESET TUNING 1 | |
| S652 | EVQ21405R | PRESET TUNING 2 | |
| S653 | EVQ21405R | PRESET TUNING 3 | |
| S654 | EVQ21405R | PRESET TUNING 4 | |
| S655 | EVQ21405R | PRESET TUNING 5 | |
| S656 | EVQ21405R | PRESET TUNING 6 | |
| S657 | EVQ21405R | PRESET TUNING 7 | |
| S658 | EVQ21405R | PRESET TUNING 8 | |
| S659 | EVQ21405R | PRESET TUNING 9 | |
| S660 | EVQ21405R | PRESET TUNING 10 | |
| S661 | EVQ21405R | PRESET TUNING >10 | |
| S662 | EVQ21405R | PRESET TUNING 0 | |
| | | | |
| | | CONNECTOR(S) | |
| | | | |
| CN11 | RJS1A1101T1 | CONNECTOR(1P) | |
| CN12, 13 | RJS1A1101T1 | CONNECTOR(1P) | (GC) |
| CN14 | RJS1A1101T1 | CONNECTOR(1P) | |
| CN16-21 | RJS1A1101T1 | CONNECTOR(1P) | |
| CN301 | RJS1A6823 | CONNECTOR(23P) | |
| CN401, 402 | RJS1A6823 | CONNECTOR(23P) | |
| CN403 | RJS1A6814 | CONNECTOR(14P) | |
| CN404 | RJS1A6606 | CONNECTOR(6P) | |
| CN501 | RJS1A6714 | CONNECTOR(14P) | |
| CN551 | RJS2A1506 | CONNECTOR(6P) | |
| CN601, 602 | RJS1A6223-1 | CONNECTOR(23P) | |
| | | | |
| | | JACK(S) | |
| | | | |
| JK11 | SJS9236 | AC INLET | (E, EB, EG, GC) ⚠ |
| JK11 | SJSD16 | AC INLET | (GN) ⚠ |
| JK801 | RJH3201N | LINE OUT | |
| | | | |
| | | FLAT CABLE(S) | |
| | | | |
| FC502 | REZ0612 | FLAT CABLE(6P) | |
| FC503 | REZ0613 | FLAT CABLE(3P) | |
| FC601 | REZ0610 | FLAT CABLE(3P) | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | <SERVO P.C.B.> | |
| | | INTEGRATED CIRCUIT(S) | |
| | | | |
| IC701 | AN8802SCE1V | SERVO AMP. | |
| IC702 | MN66271RA | SERVO PROCESSOR | |
| IC703 | AN8389SE1 | MOTOR DRIVE | |
| | | | |
| | | TRANSISTOR(S) | |
| | | | |
| Q701 | 2SB709S | TRANSISTOR | |
| | | | |
| | | OSCILLATOR(S) | |
| | | | |
| X701 | RSXZ16M9M01T | OSCILLATOR(16.9344MHz) | |
| | | | |
| | | SWITCH(ES) | |
| | | | |
| S701 | RSM0006-P | REST DETECTOR | |
| | | | |
| | | CONNECTOR(S) AND SOCKET(S) | |
| | | | |
| CN701 | RJU035T016-1 | SOCKET(16P) | |
| CN702 | RJS1A6723-1Q | CONNECTOR(23P) | |

## ■ LOADING MECHANISM PARTS



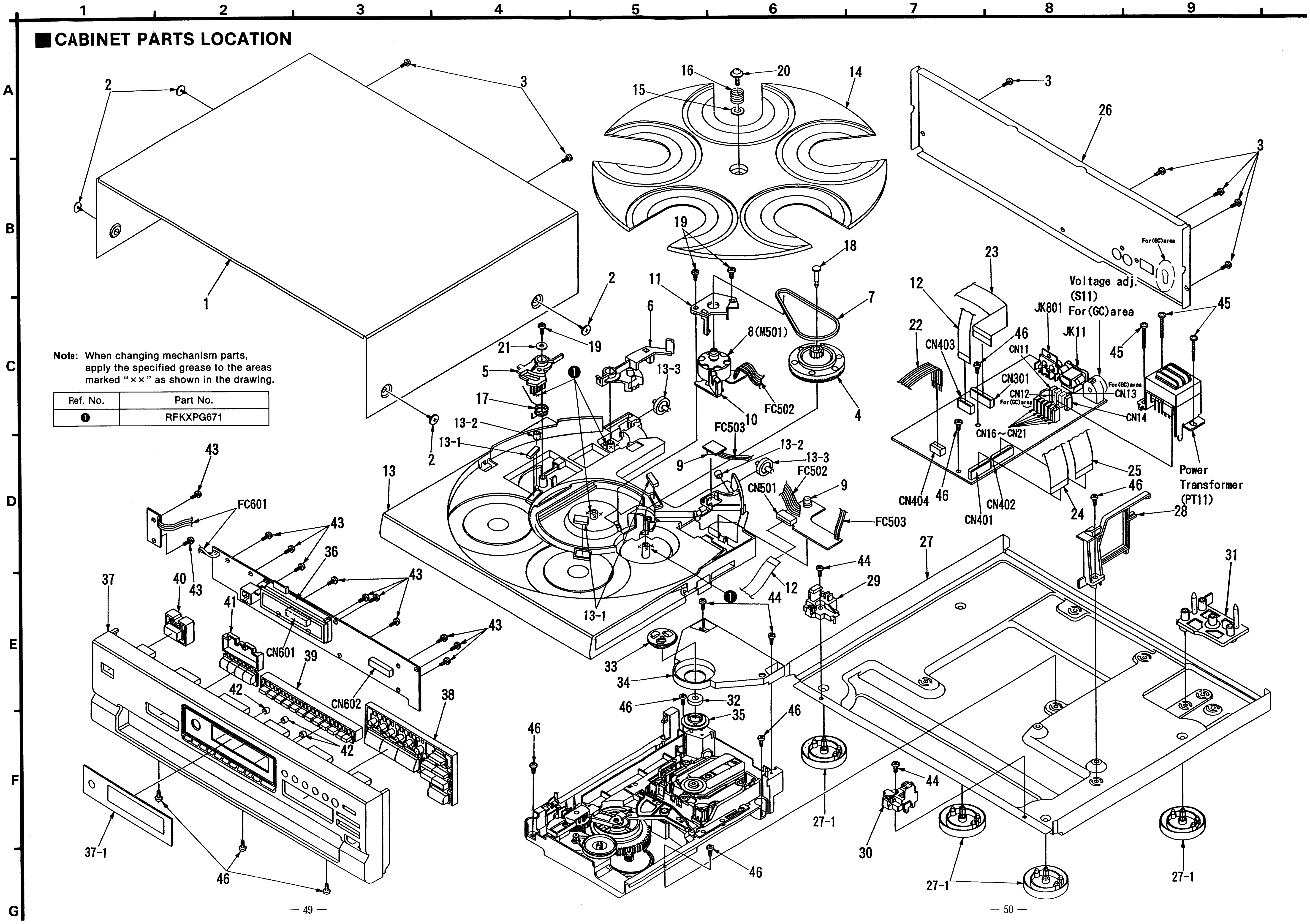
**Note:** When changing mechanism parts, apply the specified grease to the areas marked "××" as shown in the drawing.

| Ref. No. | Part No. |
|---|---|
| ❶ | RFKXPG671 |

## ■ CABINET PARTS LOCATION

Note: When changing mechanism parts, apply the specified grease to the areas marked "× ×" as shown in the drawing.

| Ref. No. | Part No. |
|---|---|
| ❶ | RFKXPG671 |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A
B
C
D
E
F
G
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6
7
8(M501)
9
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13-1
13-2
13-3
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27-1
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37-1
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44
45
46
❶
FC502
FC503
FC601
CN401
CN402
CN403
CN404
CN501
CN601
CN602
CN11
CN12
CN13
CN14
CN16～CN21
CN301
JK801
JK11
Voltage adj.
(S11)
For(GC)area
For(GC)area
Power
Transformer
(PT11)

# REPLACEMENT PARTS LIST

Notes: *The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Warning: This product uses a laser diode. Refer to caution statements on page 2.
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| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | CABINET AND CHASSIS | |
| | | | |
| 1 | RKM0193-K | CABINET | |
| 2 | SNE2129-3 | SCREW | |
| 3 | XTBS3+8JFZ1 | SCREW | |
| 4 | RDG0267 | REDUCTION GEAR | |
| 5 | RDG0268 | CLOSE LOCK GEAR | |
| 6 | RDG0269-3 | OPEN LOCK GEAR | |
| 7 | RDV0031 | BELT | |
| 8 | RFKPLPD667PA | TRAY MOTOR(M501) ASS'Y | |
| 9 | RMN0254 | LED HOLDER(D501, Q501) | |
| 10 | RMN0255 | SENSOR HOLDER(D502) | |
| 11 | RMN0263 | MOTOR HOLDER | |
| 12 | REZ0648 | FFC(24P) | |
| 13 | RFKNLPD1000E | TRAY ASS'Y | (E, EB, EG) |
| 13 | RFKNLPD667PA | TRAY ASS'Y | (GC, GN) |
| 13-1 | RMF0182 | TRAY FELT | |
| 13-2 | RMG0200 | SILENT RUBBER | |
| 13-3 | RMR0546-W | TRAY ROLLER | |
| 14 | RGT0019-1 | ROTARY TRAY | |
| 15 | RHW81001-1 | WASHER | |
| 16 | RMB0365 | SPRING | |
| 17 | RME0152-2 | LOCK GEAR SPRING | |
| 18 | RMS0123-1 | RIVET | |
| 19 | XTB3+10G | SCREW | |
| 20 | XTWS3+10T | SCREW | |
| 21 | XWE3D13 | SCREW | |
| 22 | REZ0623 | FLAT CABLE(6P) | |
| 23 | REZ0635 | FFC(23P) | |
| 24 | REZ0636 | FFC(23P) | |
| 25 | REZ0637 | FFC(23P) | |
| 26 | RGR0184A1C1 | REAR PANEL | (E, EG) |
| 26 | RGR0184A1D1 | REAR PANEL | (EB, GN) |
| 26 | RGR0184B1A | REAR PANEL | (GC) |
| 27 | RFKJLPD667PK | CHASSIS ASS'Y | |
| 27-1 | RKA0053-A | FOOT | |
| 28 | RMR0749-W | CABLE HOLDER | |
| 29 | RMR0742-K | TRAY BASE GUIDE(L) | |
| 30 | RMR0743-K | TRAY BASE GUIDE(R) | |
| 31 | RMR0765-W1 | TRANSFORMER BASE | |
| 32 | RHM245ZA | MAGNET | |
| 33 | RMR0334 | FIXED PLATE | |
| 34 | RFKNLPD687EK | CLAMP PLATE ASS'Y | |
| 35 | RMR0761-W | CLAMPER | |
| 36 | RMN0185-1 | FL HOLDER | |
| 37 | RFKGLPD687EK | FRONT PANEL ASS'Y | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 37-1 | RGK0611A-K | FRONT ORNAMENT PLATE | |
| 38 | RGU1016-K1 | MAIN BUTTON | |
| 39 | RGU1019-K | 10 KEY BUTTON | |
| 40 | RGU1015-K | POWER BUTTON | |
| 41 | RGU1017-K | SUB BUTTON | |
| 42 | RMG0200 | STOPPER TUBE | |
| 43 | XTBS26+8J | SCREW | |
| 44 | XTB3+10JFZ | SCREW | |
| 45 | XTB3+20J | SCREW | |
| 46 | XTB3+8JFZ | SCREW | |
| | | | |
| | | LOADING MECHANISM | |
| | | | |
| 101 | RDG0270 | REDUCTION GEAR | |
| 102 | RDG0271 | DRIVE GEAR(1) | |
| 103 | RDG0272 | DRIVE GEAR(2) | |
| 104 | RDK0025 | DRIVE CAM | |
| 105 | RDP0050 | PULLEY GEAR | |
| 106 | RFKPLPD667PB | LOADING MOTOR(M551) ASS'Y | |
| 107 | RHD26019 | SCREW | |
| 108 | RMG0268-K | BELT | |
| 109 | RML0334 | DRIVE LEVER | |
| 110 | RMM0117 | SLIDE PLATE(1) | |
| 111 | RMM0118 | SLIDE PLATE(2) | |
| 112 | RMR0746-W | REINFORCING PLATE | |
| 113 | RFKNLPD667PB | MECHANISM BASE ASS'Y | |
| 114 | RXQ0346-1 | SLIDER PLATE | |
| 115 | XTB3+10JFZ | SCREW | |
| 116 | RAE0113Z | TRAVERSE DECK ASS'Y | |
| 116-1 | SHGD112 | FLOATING RUBBER(1) | |
| 116-2 | SHGD113-1 | FLOATING RUBBER(2) | |
| 116-3 | SNSD38 | SCREW | |
| 117 | RME0109 | FLOATING SPRING(1) | |
| 118 | RME0142 | FLOATING SPRING(2) | |
| 119 | RMR0698-K | TRAVERSE CHASSIS | |
| 120 | RMS0123-1 | TRAVERSE FIXED PIN(1) | |
| 121 | RMS0350 | TRAVERSE FIXED PIN(2) | |
| 122 | XTV2+6G | SCREW | |
| 123 | RMX0094 | TRAY HOLDER | |
| 124 | XTN2+6G | SCREW | |
| | | | |
| | | | |
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| | | | |

## RESISTORS AND CAPACITORS

Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| | | |
| | | RESISTORS |
| | | |
| R11, 12 | ERDS2TJ181T | 1/4W 180 E, EB, EG, GN |
| R11, 12 | ERDS2TJ271 | 1/4W 270 GC |
| R13-16 | ERDS2TJ1R0 | 1/4W 1.0 GC |
| R17 | ERQ16NKWR15E | 1W 0.15 E, EB, EG⚠ |
| R21, 22 | ERDS2TJ122 | 1/4W 1.2K E, EB, EG, GN |
| R21, 22 | ERDS2TJ182 | 1/4W 1.8K GC |
| R31 | ERDS2TJ123 | 1/4W 12K |
| R32, 33 | ERDS2TJ103 | 1/4W 10K |
| R34 | ERDS2TJ101 | 1/4W 100 E, EB, EG |
| R41 | ERDS2TJ221 | 1/4W 220 E, EB, EG |
| R41 | ERDS2TJ471 | 1/4W 470 GC, GN |
| R42 | ERDS2TJ221 | 1/4W 220 E, EB, EG |
| R43 | ERDS2TJ221 | 1/4W 220 E, EB, EG |
| R44, 45 | ERDS2TJ4R7T | 1/4W 4.7 E, EB, EG |
| R51, 52 | ERDS2TJ122 | 1/4W 1.2K |
| R401-407 | ERDS2TJ472 | 1/4W 4.7K |
| R409 | ERDS2TJ102 | 1/4W 1K |
| R410 | ERDS2TJ103 | 1/4W 10K |
| R411 | ERDS2TJ472 | 1/4W 4.7K |
| R412 | ERDS2TJ223 | 1/4W 22K |
| R413 | ERDS2TJ103 | 1/4W 10K |
| R414 | ERDS2TJ471 | 1/4W 470 |
| R415 | ERDS2TJ103 | 1/4W 10K |
| R416 | ERDS2TJ102 | 1/4W 1K |
| R421 | ERDS2TJ472 | 1/4W 4.7K |
| R461 | ERDS2EJ121 | 1/4W 120 E, EB, EG |
| R461 | ERDS2TJ271 | 1/4W 270 GC, GN |
| R462 | ERDS2TJ221 | 1/4W 220 |
| R463 | ERDS2EJ121 | 1/4W 120 E, EB, EG |
| R471 | ERDS2TJ103 | 1/4W 10K |
| R472 | ERDS2EJ121 | 1/4W 120 |
| R803, 804 | ERDS2TJ224T | 1/4W 220K |
| R805, 806 | ERDS2TJ822 | 1/4W 8.2K |
| R807, 808 | ERDS2TJ123 | 1/4W 12K |
| R809-812 | ERDS2TJ333 | 1/4W 33K |
| R813-816 | ERDS2TJ102 | 1/4W 1K |
| R817, 818 | ERDS2TJ473 | 1/4W 47K |
| R819, 820 | ERDS2TJ100 | 1/4W 10 |
| R851 | ERDS2TJ222 | 1/4W 2.2K |
| R852 | ERDS2TJ102 | 1/4W 1K |
| | | |
| | | CAPACITORS |
| | | |
| C11 | ECBT1E103ZF | 25V 0.01U |
| C12 | ECA1CM332B | 16V 3300U ⚠ |
| C15 | ECBT1H102KB5 | 50V 1000P |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C16 | ECA1AM471B | 10V 470U |
| C17 | RCE0JKA101BV | 6.3V 100U |
| C20 | ECBT1E103ZF | 25V 0.01U E, EB, EG, GN |
| C20 | ECBT1H102KB5 | 50V 1000P GC |
| C21, 22 | ECA1VM101B | 35V 100U |
| C25, 26 | ECBT1H102KB5 | 50V 1000P |
| C30 | ECBT1E103ZF | 25V 0.01U GC, GN |
| C31, 32 | ECA1JM470B | 63V 47U |
| C33 | ECBT1H102KB5 | 50V 1000P |
| C34 | ECBT1H102KB5 | 50V 1000P GC |
| C41 | ECBT1H102KB5 | 50V 1000P |
| C42 | RCE0JKA101BV | 6.3V 100U |
| C301 | ECBT1C103NS5 | 16V 0.01U |
| C401 | ECBT1C103NS5 | 16V 0.01U |
| C402 | ECA0JM471B | 6.3V 470U |
| C403 | ECEA1HKA010B | 50V 1U |
| C404 | ECEA1EKA4R7B | 25V 4.7U |
| C405 | ECBT1C103NS5 | 16V 0.01U |
| C406 | ECEA1HKA010B | 50V 1U |
| C421 | ECBT1C103NS5 | 16V 0.01U |
| C461 | RCE1AKA470BG | 10V 47U |
| C462 | ECBT1C103NS5 | 16V 0.01U |
| C601 | ECFR1E104ZF5 | 25V 0.1U |
| C801, 802 | RCE1AKA470BG | 10V 47U |
| C805-808 | ECCR1H391J5 | 50V 390P |
| C809, 810 | RCE0JKA470BG | 6.3V 47U |
| C811, 812 | ECBT1H102KB5 | 50V 1000P |
| | | |
| | | <SERVO P.C.B.> |
| | | RESISTORS |
| | | |
| R701 | ERJ6GEYJ100 | 1/10W 10 |
| R702 | ERJ6GEYJ471V | 1/10W 470 |
| R703 | ERJ6GEYJ823 | 1/10W 82K |
| R704 | ERJ6GEYJ102A | 1/10W 1K |
| R705 | ERJ6GEYJ103V | 1/10W 10K |
| R706 | ERJ6GEYJ102A | 1/10W 1K |
| R707 | ERJ6GEYJ473V | 1/10W 47K |
| R708 | ERJ6GEYJ104V | 1/10W 100K |
| R709 | ERJ6GEYJ683V | 1/10W 68K |
| R711 | ERJ6GEYJ154V | 1/10W 150K |
| R712 | ERJ6GEYJ221V | 1/10W 220 |
| R717-720 | ERJ6GEYJ102A | 1/10W 1K |
| R721 | ERJ6GEYJ101V | 1/10W 100 |
| R722 | ERJ6GEYJ563V | 1/10W 56K |
| R723 | ERJ6GEYJ182V | 1/10W 1.8K |
| R724 | ERJ6GEYJ333V | 1/10W 33K |
| R725 | ERJ6GEYJ472V | 1/10W 4.7K |
| R726 | ERJ6GEYJ473V | 1/10W 47K |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| R727 | ERJ6GEYJ103V | 1/10W 10K |
| R728 | ERJ6GEYJ392V | 1/10W 3.9K |
| R730 | ERJ6GEYJ331V | 1/10W 330 |
| R731 | ERJ6GEYJ392V | 1/10W 3.9K |
| R734-736 | ERJ6GEYJ101V | 1/10W 100 |
| R738 | ERJ6GEYJ223V | 1/10W 22K |
| R739 | ERJ6GEYJ681V | 1/10W 680 |
| R741-743 | ERJ6GEYJ562V | 1/10W 5.6K |
| R744 | ERJ6GEYJ103V | 1/10W 10K |
| R745 | ERJ6GEYJ155V | 1/10W 1.5M |
| R748 | ERJ6GEYJ182V | 1/10W 1.8K |
| R749 | ERJ8GEYJ103V | 1/8W 10K |
| | | |
| | | CHIP JUMPERS |
| | | |
| R714 | ERJ6GEY0R00A | CHIP JUMPER |
| J701-704 | ERJ8GEY0R00A | CHIP JUMPER |
| J707-709 | ERJ8GEY0R00A | CHIP JUMPER |
| J714-717 | ERJ8GEY0R00A | CHIP JUMPER |
| J721 | ERJ6GEY0R00A | CHIP JUMPER |
| J724-726 | ERJ6GEY0R00A | CHIP JUMPER |
| | | |
| | | CAPACITORS |
| | | |
| C701 | ECEA0JKA220 | 6.3V 22U |
| C702 | ECEA1HKA010I | 50V 1U |
| C703 | ECEA0JKA101I | 6.3V 100U |
| C704 | ECUZNE104MBN | 25V 0.1U |
| C705 | ECEA1HKA010I | 50V 1U |
| C706 | ECUE1H101JCN | 50V 100P |
| C707 | ECUV1E273KBN | 25V 0.027U |
| C708 | ECUE1H472KBN | 50V 4700P |
| C709 | ECUE1C473KBN | 16V 0.047U |
| C710 | ECUE1H152KBN | 50V 1500P |
| C711, 712 | ECUWNE104ZFN | 25V 0.1U |
| C713 | ECUV1C104MBM | 16V 0.1U |
| C714 | ECEA0JKA101I | 6.3V 100U |
| C715 | ECEA0JKA470I | 6.3V 47U |
| C716 | ECUE1H561KBN | 50V 560P |
| C717 | ECUWNE104ZFN | 25V 0.1U |
| C718 | ECUV1C224KBM | 16V 0.22U |
| C721, 722 | ECUE1H270JCN | 50V 27P |
| C723 | ECEA1AKA221I | 10V 220U |
| C724 | ECUV1C104MBM | 16V 0.1U |
| C725, 726 | ECUE1H102KBN | 50V 1000P |
| C727, 728 | ECEA1HPK010I | 50V 1U |
| C730 | ECUWNE104ZFN | 25V 0.1U |
| C731, 732 | ECEA0JK221I | 6.3V 220U |
| C733 | ECUZNE104MBN | 25V 0.1U |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C734 | ECEA1AKA221I | 10V 220U |
| C735-737 | ECUWNE104ZFN | 25V 0.1U |
| C738 | ECUV1C154KBN | 16V 0.15U |
| C742 | ECUV1E273KBN | 25V 0.027U |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C743 | ECUWNE104ZFN | 25V 0.1U |
| C744 | ECUE1E822KBN | 25V 8200P |
| C745 | ECUE1C473MBN | 16V 0.047U |
| C746 | ECUE1H050DCN | 50V 5P |

| Ref. No. | Part No. | Values & Remarks |
|---|---|---|
| C747 | ECUE1H222KBN | 50V 2200P |
| C748 | ECUV1H471KBM | 50V 470P |
| | | |
| | | |

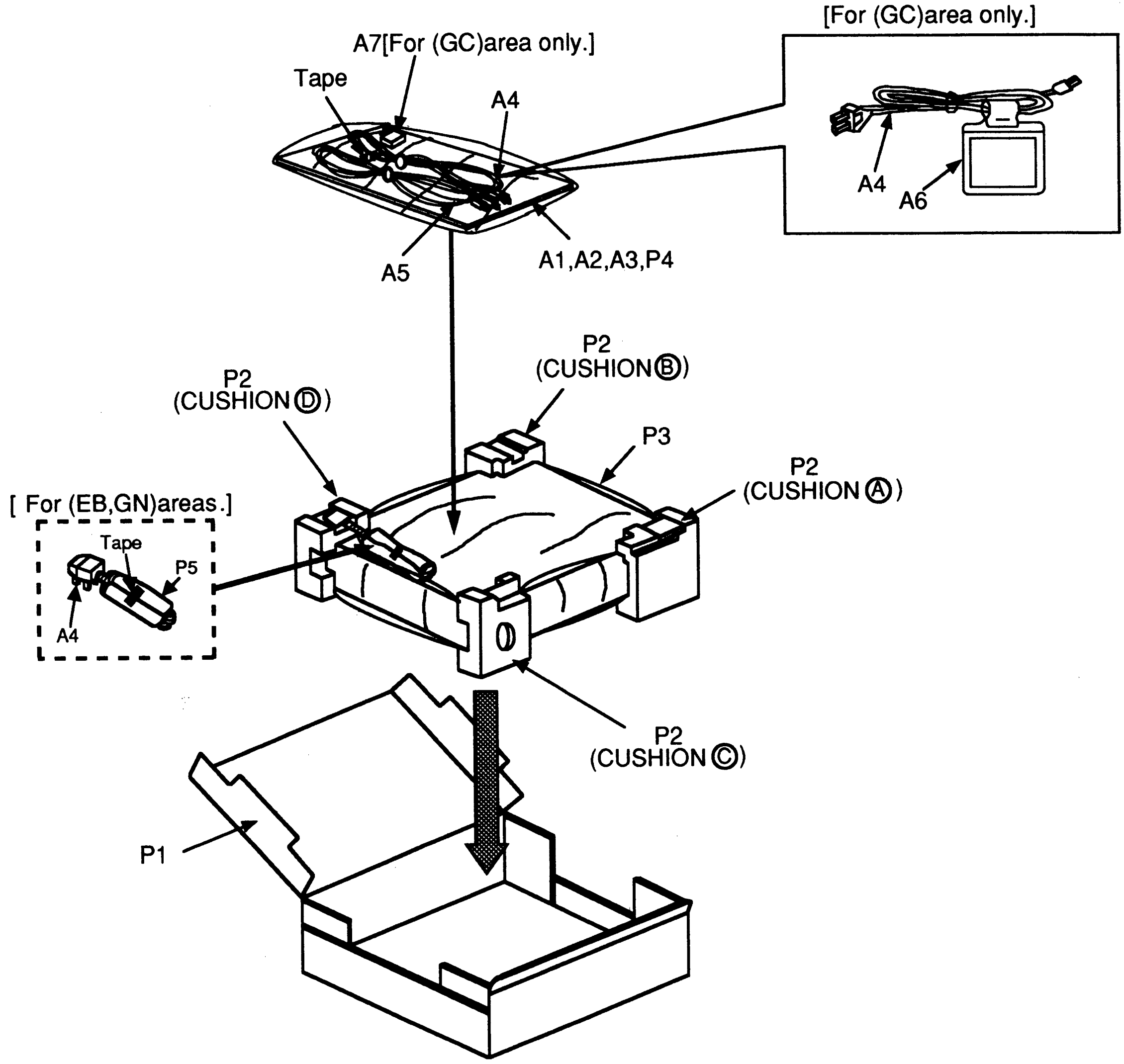
# ■ REPLACEMENT PARTS LIST

**Notes:** *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*Warning: This product uses a laser diode. Refer to caution statements on page 2.
*ACHTUNG: Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen einc vom hersteller spezifizierte einheit ausgetauscht werden.
*The "(SF)" mark denotes the standard part.
*[V] indicates in Remarks columns parts that are supplied by Video Recorder Division.

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| | | | |
| | | PACKING MATERIAL | |
| | | | |
| P1 | RPG2327 | PACKING CASE | (E, EG, GC) |
| P1 | RPG2328 | PACKING CASE | (EB) |
| P1 | RPG2365 | PACKING CASE | (GN) |
| P2 | RPN0760 | CUSHION | (E, EG, GC) |
| P2 | RPN0772 | CUSHION | (EB, GN) |
| P3 | SPP730 | PROTECTION BAG (UNIT) | |
| P4 | RPF0139 | PROTECTION BAG (F. B.) | |
| P5 | RPH0032 | MIRROR SHEET | (EB, GN) |
| | | | |
| | | ACCESSORIES | |
| | | | |
| A1 | RFKSLPD687E | INSTRUCTION MANUAL ASS'Y | (E) |
| A1 | RQT2773-B | INSTRUCTION MANUAL | (EB, GN) |
| A1 | RFKSLPD687EG | INSTRUCTION MANUAL ASS'Y | (EG) |
| A1 | RFKSLPD687GC | INSTRUCTION MANUAL ASS'Y | (GC) |
| A2 | RQA0013 | WARRANTY CARD | (E, EB, EG) |
| A2 | RQX7433ZA | WARRANTY CARD | (GN) |
| A3 | RQCB0169 | SERVICENTER LIST | |
| A4 | RJA0019-2K | AC POWER SUPPLY CORD | (E, EG, GC)⚠(SF) |
| A4 | VJA0733 | AC POWER SUPPLY CORD | (EB)⚠(SF) [V] |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| A4 | RJA0036-K | AC POWER SUPPLY CORD | (GN)⚠(SF) |
| A5 | SJP2249-3 | STEREO CONNECTION CABLE | |
| A6 | RQLA0134 | VOLTAGE CAUTION LABEL | (GC) |
| A7 | SJP5213-2 | POWER PLUG ADAPTOR | (GC)⚠ |
| | | | |
| | | <GREASE OR JIG/TOOL> | |
| | | TEST DISC | |
| | | | |
| SA1 | SZZP1054C | PLAYABILITY TEST DISC | |
| SA2 | SZZP1056C | UNEVEN TEST DISC | |
| | | | |
| | | ALLEN WRENCH | |
| | | | |
| SA3 | SZZP1101C | ALLEN WRENCH (M2.0) | |
| | | | |
| | | LOCK PAINT | |
| | | | |
| SA4 | RZZ0L01 | LOCK PAINT | |
| | | | |
| | | GREASE | |
| | | | |
| SA5 | RFKXPG671 | MOLYCOAT GREASE PG671 | |
| | | | |

# ■ PACKAGING


[For (GC)area only.]
A7[For (GC)area only.]
Tape
A4
A4
A6
A5
A1,A2,A3,P4
P2 (CUSHION Ⓑ)
P2 (CUSHION Ⓓ)
P3
P2 (CUSHION Ⓐ)
[ For (EB,GN)areas.]
Tape
P5
A4
P2 (CUSHION Ⓒ)
P1

[CUSHION Ⓐ,Ⓑ,Ⓒ,Ⓓ : Part No.RPN0760:For (E,EG,GC) areas.
: Part No.RPN0772:For (EB,GN) areas.]

Printed in Japan
H950210500 NH/YU/TM

ORDER NO. AD9502066A2

# Service Manual

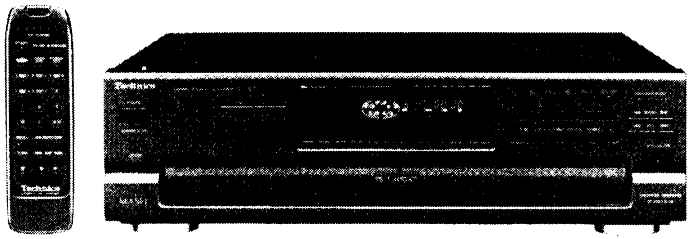
COMPACT disc DIGITAL AUDIO

DIGITAL

MASH*
multi-stage noise shaping

## Compact Disc Changer

## SL-PD887



**Colour**

(K) ... Black Type

**Area**

| Suffix for Model No. | Area | Colour |
|---|---|---|
| (E) | Europe. | (K) |
| (EB) | Great Britain. | |
| (EG) | Germany and Italy. | |

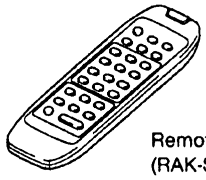
※
- Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
- MASH is a trademark of NTT.

**Please file and use this manual together with the service manual for Model No. SL-PD687, Order No. AD9502043C8.**

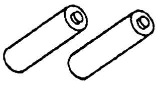
**Note:** • This service manual is provided to indicate the main differences between the original model No. SL-PD687 (EB) and the subsequent model No. SL-PD887 (E, EB, EG).

## ADDITION

## ■ ACCESSORIES (SL-PD687 Service Manual of page 3.)



Remote control transmitter
(RAK-SL404WH).................. 1 pc.

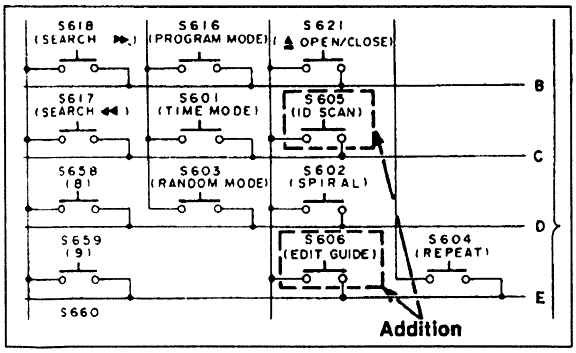


Batteries "AAA" (R03)
for remote control transmitter .... 2 pcs.
**Note:** These are available on sale route.

## ■ SCHEMATIC DIAGRAM

**(SL-PD687 Service Manual of page 38.)**

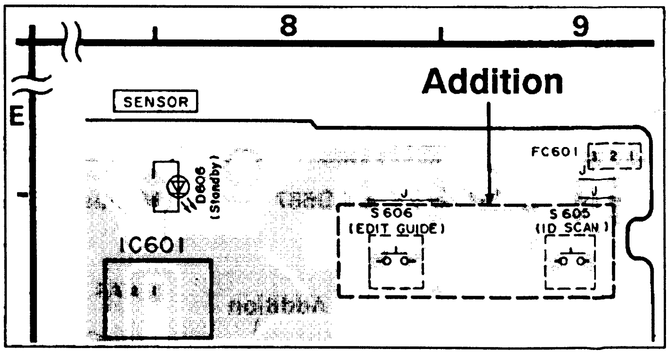
### E OPERATION CIRCUIT


S618 (SEARCH ▶▶|)
S616 (PROGRAM MODE)
S621 (≜ OPEN/CLOSE)
S617 (SEARCH ◀◀)
S601 (TIME MODE)
S605 (ID SCAN)
S658 (8)
S603 (RANDOM MODE)
S602 (SPIRAL)
S659 (9)
S606 (EDIT GUIDE)
S604 (REPEAT)
S660
B
C
D
E
Addition

## ■ PRINTED CIRCUIT BOARD

**(SL-PD687 Service Manual of page 44.)**

### E OPERATION P.C.B. (REP1723E-S)


8
9
E
Addition
SENSOR
D606 (Standby)
FC601
3 2 1
J
S606 (EDIT GUIDE)
S605 (ID SCAN)
IC601

⚠ WARNING
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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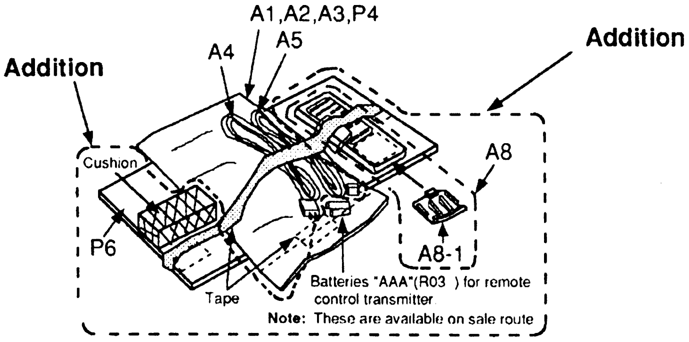
# CHANGES

## CHANGE IN REPLACEMENT PARTS LIST (SL-PD687 Service Manual of pages 46, 47, 51, 53.)

**Note:**
- Mentioned in this parts list is only those different from Model No. SL-PD687 (EB). All other parts are the same as for SL-PD687 (EB).
- Important safety notice: Components identified by △ mark have special characteristics important for safety. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area) Parts without these indications can be used for all areas.
- Remote Control Ass'y: Supply period for three years from termination of production.
- The "(SF)" mark denotes the standard part.
- [V] Indicates in Remarks columns parts that are supplied by Video Recoder Division.

| Ref. No. | Change of Part No. | | Part Name & Description | Remarks |
|---|---|---|---|---|
| | SL-PD687 (EB) ➡ | **SL-PD887 (E, EB, EG)** | | |
| SWITCH(ES) | | | | |
| S605 | —— | **EVQ21405R** | ID SCAN | Addition |
| S606 | —— | **EVQ21405R** | EDIT GUIDE | Addition |
| CABINET AND CHASSIS | | | | |
| 26 | RGR0184A1D1 | **RGR0184A1K1** | REAR PANEL | (E, EG) |
| | | **RGR0184A1L1** | REAR PANEL | (EB) |
| 37 | RFKGLPD687EK | **RFKGLPD887EK** | FRONT PANEL ASS'Y | |
| 37-1 | RGK0611A-K | **RGK0611D-K** | FRONT ORNAMENT PLATE | |
| 38 | RGU1016-K1 | **RGU1016-K** | MAIN BUTTON | |
| PACKING MATERIAL | | | | |
| P1 | RPG2328 | **RPG2370** | PACKING CASE | (E, EG) |
| | | **RPG2371** | PACKING CASE | (EB) |
| P2 | RPN0772 | **RPN0781** | CUSHION | (E, EG) |
| | | **RPN0772** | CUSHION | (EB) |
| P5 | RPH0032 | —— | —— | (E, EG) Deletion |
| | | **RPH0032** | MIRROR SHEET | (EB) |
| P6 | —— | **RPQ0535** | PAD | Addition |
| ACCESSORIES | | | | |
| A1 | RQT2773-B | **RFKSLPD887E** | INSTRUCTION MANUAL ASS'Y | (E) |
| | | **RFKSLPD887EB** | INSTRUCTION MANUAL ASS'Y | (EB) |
| | | **RFKSLPD887EG** | INSTRUCTION MANUAL ASS'Y | (EG) |
| A4 | VJA0733 | **RJA0019-2K** | AC POWER SUPPLY CORD | (E, EG) △ (SF) |
| | | **VJA0733** | AC POWER SUPPLY CORD | (EB) △ (SF) [V] |
| A8 | —— | **RAK-SL404WH** | REMOTE CONTROL TRANSMITTER | Addition |
| A8-1 | —— | **RKK0080-K** | BATTERY COVER, FOR R/C TRANSMITTER | Addition |

## PACKAGING (SL-PD687 Service Manual of page 54.)


A1,A2,A3,P4
A4
A5
Addition
Addition
Cushion
P6
Tape
A8
A8-1
Batteries "AAA"(R03 ) for remote control transmitter
Note: These are available on sale route